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EXCAVATION AT SURKOTADA 1971-72 AND EXPLORATION IN KUTCH

JAGAT PATI JOSHI

WITH CONTRIBUTIONS BY

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Sir R.E. Mortimer Wheeler
(1890 - 1976)



Dedicated in the centenary year of birth
to the memory of Sir R.E. Mortimer Wheeler,
Director General (1944-48), Archaeological Survey of India
who gave new dimension to Indian Archaeology.

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A conjectural view of Indus settlement at Surkotada
Painting by—Lalit Jain, Archaeological Survey of India

1. INTRODUCTION

A. GENERAL REMARKS

The reconstruction of the story of Man in the Indo-Pakistan sub-continent from the primitive beginnings upto the present day, on the basis of his material remains, has necessitated considerable archaeological investigations. The patterns of cultural development emerging out from various regions in the past few decades are of immense value in understanding the march of Man in a broad way covering vertical development of his economy and material culture. The vastness of the sub-continent and its varied ecological conditions have played an important role in the shaping of its history and succession of cultures with their migratory and perhaps diffusional trends.

The potentialities of Kutch as a region for systematic archaeological investigation which could contribute in a substantial way to Indian archaeology in general and to Kutch in particular were evident from the survey of work done by other archaeologists earlier covering, setting of the area and the geographical references in ancient literature. Broadly speaking, the region of Kutch posed the following problems:

1. The sphere of activity of the Stone Age Man in Kutch during successive stages of Stone Age.
2. Excavations and explorations carried out in the past in the north and northwestern part of the Indo-Pakistan sub-continent have brought to light a large number of sites of the Harappan Culture, more widely known as the 'Indus Civilization'. The present day extent of this culture ranges in the north from Gumla and Rehman Dheri on the eastern foot of the Sulaiman hills[1] through Manda in J&K and Ropar in the Punjab to Alamgirpur and Hulas in Uttar Pradesh to Sutkagendor in Makran (Pakistan). The lower limits covered by this culture include Meligaon and Bhagatrav in south Gujarat and Daimabad in Maharashtra. The total area occupied by Indus Valley settlement in the sub-continent would come to around 1.3 million square kilometers. Banawali and Rakhigarhi in Haryana, Kalibangan and other sites in Rajasthan, Bhawalpur area in Pakistan and Lothal and other sites in Gujarat on the west mark different zonal cultures of Indus origin (Fig.1).[2]

   Though considerable data have been collected to determine the broad extent of this culture, the details of its expansion, diffusion and decay are still elusive. Although many Harappan sites were located in Sind, only five Harappan and Late Harappan

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[1] A. H. Dani, 'Excavations in the Gomal Valley', *Ancient Pakistan*, No. 5 (Peshawar, 1971).

[2] This report was submitted in 1973. Since then considerable work has been done and extant of Harappan Culture has been accordingly incorporated.

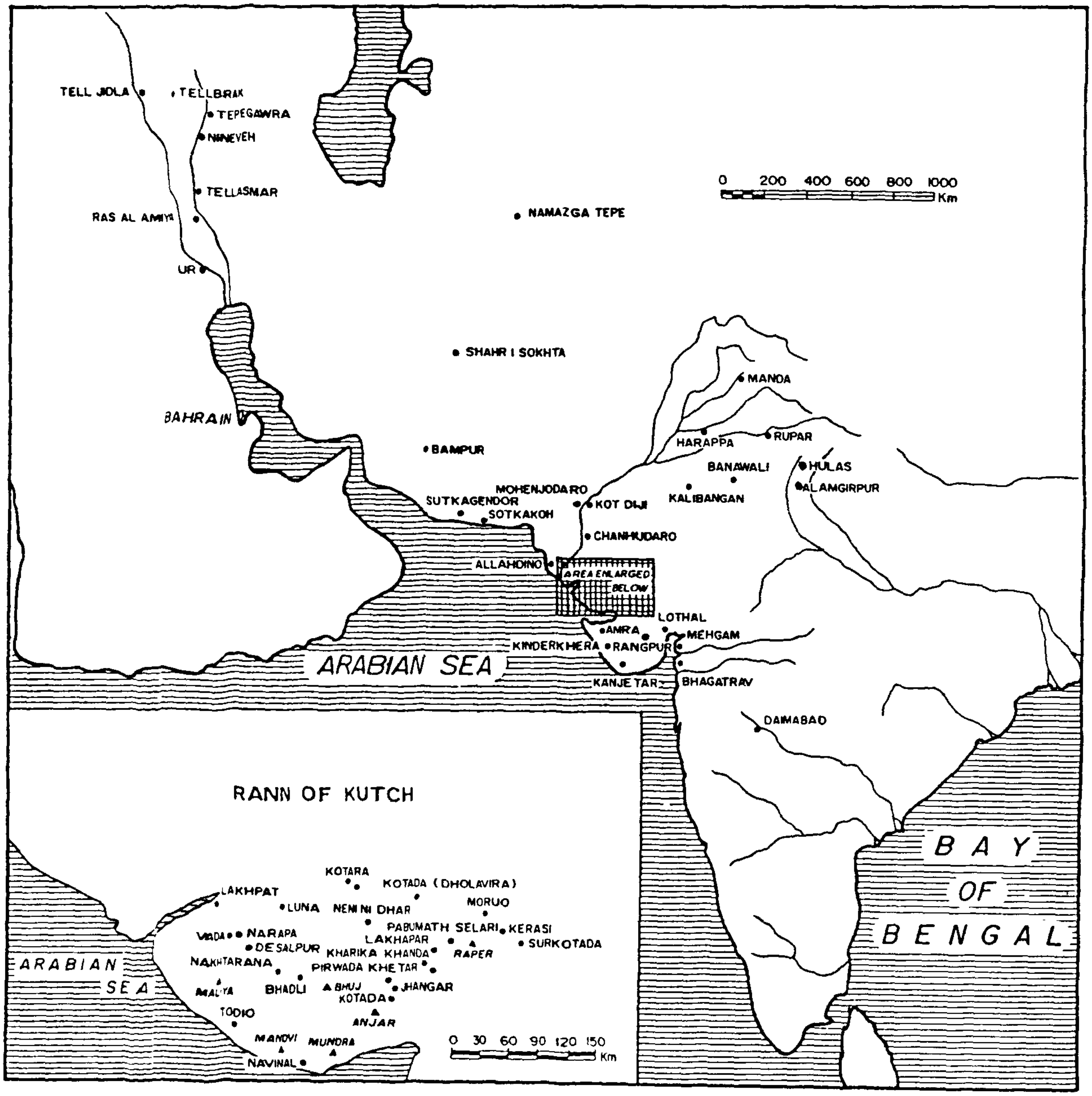


Fig. 1. Sites mentioned in the text.

sites were, till 1963, known in the vast tract of Saurashtra about 2,000 sq. km in extent. This aspect of the erratic distribution needed attention. Little was in early sixties about the position of Kutch vis-a-vis Harappan during their broad march towards the south-east as Kutch lies in between Sind and Saurashtra. Did they just touch Kutch and moved forward or settled down in that area and gradually expanded their activities towards Saurashtra?

3. Mere location of sites was not enough as another important problem in the study of Harappan expansion was the movement of the Harappans through particular land routes therefore the problem has to be studied in depth.
4. The position of the painted traditon of the Rangmahal type from Kutch also warranted attention, particularly keeping in view the early historical period of that region already known by the finds of Kshatrapa inscriptions.

A study of the aforesaid problems, while on the one hand was to give a broad picture of the march of Man in Kutch through successive periods and on the other hand, it was to throw much light on the movement of Harappans and their routes in this part of the country.

As piecemeal discoveries were likely to render little help in the reconstruction of complete history of Kutch, a systematic and planned exploration was necessitated; accordingly detailed and extensive exploration was undertaken by the author thrice, i.e., from December 1964 to January 1965; December 1965; and January 1968, with the result that as many as one hundred and twenty new sites were discovered dating from Prehistoric time to the historical period. The opportunity was also utilized to visit the already discovered and reported sites to understand their archaeological potentialities in a broader horizon. Finally, during 1971 and 1972, excavations were carried out at Surkotada, a Harappan fortified settlement in the Rapar Taluk of District Kutch, yielding very interesting results which have been assigned a prominent place in the present report. All the materials belonging to different periods from the Stone Age to Historical times, available during explorations in the region of Kutch, have been also reported here to give a comprehensive picture of the area.

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2. THE SETTING

A. SITUATION

The peninsula of Kutch lies between Lat. 22° 15' and 23° 29' N and Long. 68° 24' and 71° 10' E and is bisected by the Tropic of Cancer. Its boundaries are marked by Sind in northwest, Kathiawad and Gujarat in the east and the Arabian Sea in the south. It is separated from the mainland by the Greater Rann in the northwest and by the Little Rann in the east[1].

B. GEOLOGY

Geologically, the peninsula of Kutch is composed mostly of marine and estuarine sediments and has a variety of rocks from the middle Jurassic times to Recent times, formed under different environmental conditions. The oldest exposed rocks of the middle Jurassic Age are available in the Patcham Series comprising alternating olive green or brownish sandstones and shales. The overlying fossiliferous shales and limestones have become Archean towards the east in the upper part. These oolites are separated from the overlying Katrol Series by an unconformity of Oxfordian age. The Bhuj Series in the centre of the peninsula consists of soft, massive, current-bedded sedimentary rocks viz., sandstone and shales with poorly preserved plant fossil impressions. In the east≤west direction the Bhuj series is overlapped by the Deccan Trap. The upper portion of this Deccan Trap is laterized due to weathering. The Deccan Trap in further south and northwest has been overlaid by the Tertiary sequence[2] (Fig 2).

Stratigraphic sequence in the vicinity of the Peninsula of Kutch as given by Poddar is as below:

Age	*Formation*	*Thickness*	*Types of sediments*
Pleistocene & Recent	Alluvium, Rann and blown sand, Miliolite lime stone	10m. ±	—
Pliocene	Manchhar Series *Unconformity*	250m. ±	Partly marine

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1 *Gazetteer of the Bombay Presidency*, Vol V, 1880, pp. 1-8

2 A.B.Wynn, *Memoir of the Geological Survey of India*, No.IX, Ram Singh Ratho, *Kachchha Nu Sanskriti Darshan*, (Ahmedabad,1959), pp.13-27, M.C. Poddar, 'Stratigraphy and oil possibilities in Kutch, Western India,' Proceedings on the Symposium on the Development of Petroleum Resources of Asia and the Far East, *Mineral Resources Development Series*, U.N.O. Publications (Bangkok, 1959), No. 10, pp.140-148.

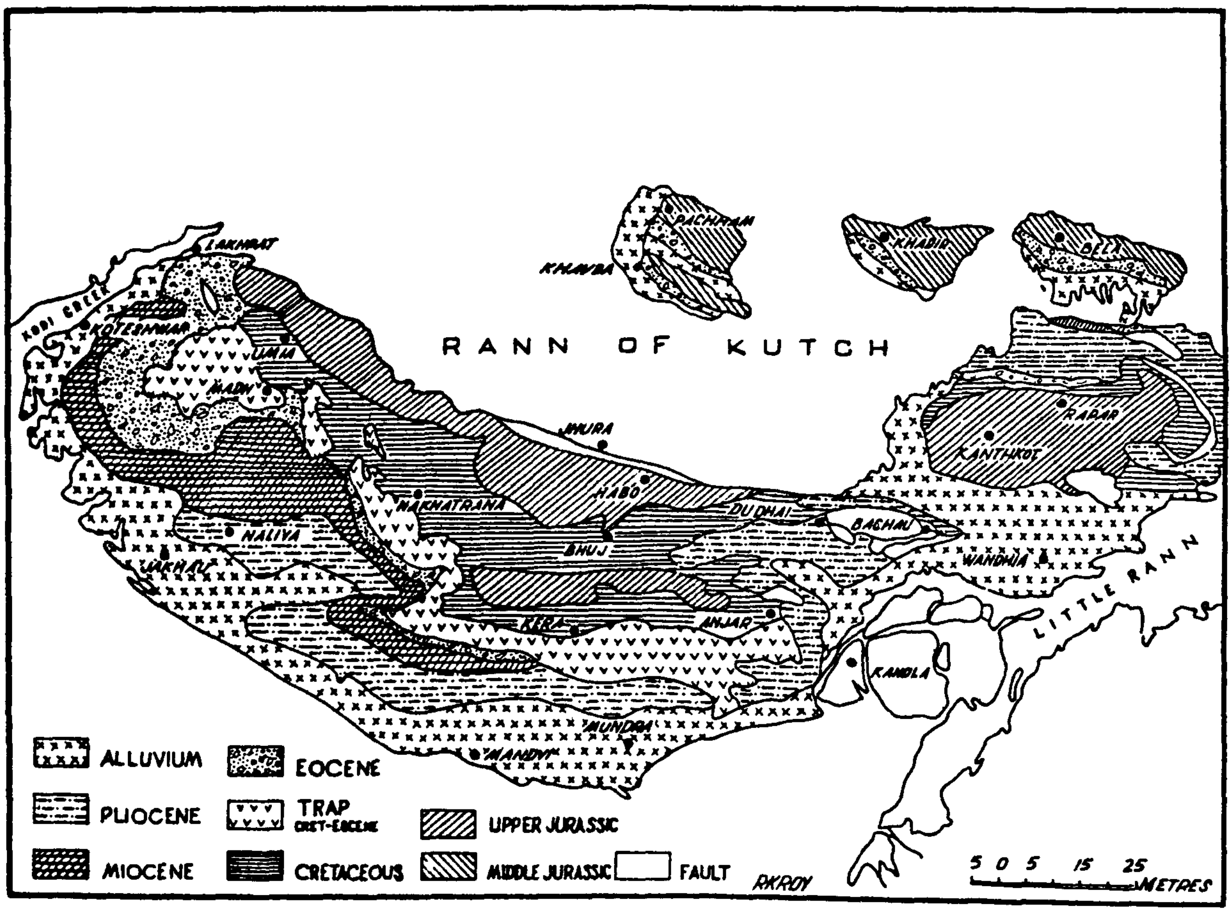


Fig. 2. Geological Map of Kutch, Gujarat.

Age	*Formation*	*Thickness*	*Types of sediments*
? Iocene	Argillaceous beds	300m. ±	Marine
	Arenaceous beds.	50m. ±	Estuarine
	Unconformity		
? Oligocene	Nummulitic lime stone	10m. ±	Marine
	Gypseous shale, etc.	200m. ±	Marine
Eocene	Lateritic clays and Laterite	30m. ±	Terrestrial
Cretaceo-Eocene	Deccan trap	600m. ±	Volcanic lavas
Mid. Cretaceous	Bhuj Series	300m. ±	Fluviatile
(? Albian)	Umia series	430m. ±	Estuarine Partially marine
Neocomian-Aptian	Ukra beds		
Kimmeridgian-Tithonian	Katrol Series	330m. ±	Mostly marine
	Unconformity		
Callovian-Oxfordian	Chari series with Dhosa Oolite bands at top	430m. ±	Marine
Bathonian Older	Patcham series Transgression Crystalline basement	325m. ±	Mostly marine

C. MORPHOLOGY

The region of Kutch (119,000 sq. km) consisting of bare, rocky hills and sandy plains, presents a contrast of considerable magnitude as compared to the fertile plains of Gujarat. The Great Rann of Kutch in the northwest and the Little Rann of Kutch in the west are vast tracts of "naked tidal mud flats, a black dislocation flecked with saline efflorescences and the sudden flight of flamingoes here and there and the banks of dead creeks picked out in white skeletal outline of salt or scum".[1] For a considerable period of the year, excepting for five months when these are filled by sea water and become slushy, the area of Banni between the Great Rann of Kutch and the mainland becomes green with grass after the rains and affords large herds of cattle. Within the limits of Kutch there are four island-like formations known as Chorad, Bela, Khadir and Patcham marked by bluish hills. The present district of Kutch is full of small hills with large areas of low-lying ground and having broad plains to the south. The entire landscape is cut by deep rivers full of pebbles that have very little water in the greater part of the year.

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[1] O.H.K. Spate and A.T.A. Learmouth, *India and Pakistan*, (Suffolk, 1967), pp. 643-646.

The hills of Kutch can be broadly divided into three categories, i.e., hills of Kutch proper, of Vagad in the eastern region and of the Rann islands. The hills are generally steep and slope towards the south. The highest hill in the central Kutch is Dhinodhar rising 381 meters above the level of Rann consisting mainly of coarse and fine sandstone with a basalt capping. The other hills in this area are called Dhola Jhurio, Varar, Vichhia, Lakrodi, Jandharia, Halman, Khatrod and Dhrabra. The hills of the Vagad region i.e., the Black range in the north and the Gora range in the south rise to a height of 81 meters and are lying broadly eastwest. In the Black range, the most impressive hill is the Pachcham Pir, rising 465 meters above the Rann and commands a magnificent view of the region up to the Pakistan border.

A glance at the map of Kutch will show a large number of small rivers,[1] which either flow towards north into the Greater Rann or south into the Arabian Sea. Due to the scanty rainfall, a striking feature of these rivers is their almost dry nature for the greater part of the year except during the rainy season when they are full and flow rapidly. The rivers flowing towards the north from the central region of Kutch are known as Nara nadi, Makdavali nadi, Panjorwali nadi, Chawad nadi, Chhari nadi and Bukhi nadi (joins Khari), Kali nadi joined by Korawadi nadi, Bherud nadi, Kaita nadi, Kaisawadi nadi and Kasowali nadi.

The rivers flowing from the central Kutch to the west and south and emptying out into the Arabian Sea are called Berwali nadi, Rakhadi nadi, Barkhan nadi, Virvati nadi, Rato nadi, Ranioro nadi, Matiwariwali nadi, Naira nadi joined in by Nayoda nadi, Suthriwadi nadi, Bandhawadi chari nadi, Kankawati, Ruparel nadi, Ganga or Bhukhi, Sai, Virani Wali nadi, Rukmawati nadi, and Chok nadi. Besides these rivers, the Kori, or the east mouth of dried up Indus River in the west,[2] and in the east the river Luni and Banas bypass Kutch on their way to the sea and help the flooding of the Rann during the rainy seasons and thus are important in understanding the Rann. These rivers have deep channels and high precipitous banks and, as said earlier, these do not have water all through the year except during the rains, thus having little effect on irrigation or adding to the greenery of the region.

Kutch has two main lakes, i.e., the Saror lake and Sindhdi lake. The celebrated Narayan Sarovar has by now disappeared.

As pointed out earlier, the Rann of Kutch,Greater and Little, bound the district of Kutch in cresenctic fashion in the northwest and the east, and this vast expanse covers an area of 14,400 sq km. As the ground level of Rann is lower than the adjoining area, it is flooded by water during rains when the southwest monsoon is in full swing and the water of the Arabian sea enters the area and spreads far-and-wide and combines with the waters of the swollen rivers. When the flood subsides the depth of the water is only 10 to 12 cm. Even in rainy season it is never more than 2 m to 2.50 m deep. From January

[1] *Gazetteer of the Bombay Presidency*, Vol. V, 1880, p.9. McMurdo has rightly pointed out that there is a great confusion regarding the names of the rivers in Kutch. See McMurdo, *Transactions of the Bombay Literary Society*, Vol II, p.224, New ed.

[2] Ram Singh Rathore, 'The Rann of Kutch', *Kumar* 500th issue (Ahamedabad, 1965).

onwards, the Rann can be crossed till June when there is no water. The ancient and the modern camel routes to the present territory of Pakistan pass through the Greater Rann of Kutch, and this factor has been of considerable importance in shaping the history of Kutch.

The Banni area (already referred to above), which is a low-lying region except for a strip on its western side is also covered by water during the rains but, because of the abundant soil brought and deposited by the north flowing rivers it produces grass unlike the Rann which is nothing but salt and sand waste, and large herds of cattle are brought here for grazing by the Maldharis of the area.

Kutch has been greatly affected by many earthquakes and the recorded ones are of 1819, 1844, 1845, 1864 and 1856. These might be responsible for the changes in the course of the Indus, the creation of Allah Band, changes in the Sindhdi lake, devastation of Lakhpat and Anjar. Poddar has rightly observed: 'the folding together with the other major structural features resulted from compressive stresses which probably began in Miocene times and continued intermittently right up to the Pleistocene and even to recent times. Evidence from the recent earthquake of 1956 strongly suggests that the compressive stresses were still active in some of the sediments of Manchhar series'.[1]

D. GEOGRAPHICAL REFERENCES TO KUTCH IN ANCIENT LITERATURE

Kutch was one of the areas included in *Aparanta* country due to its geographic position.[2] The word *'Kachchha'* means 'situated near the sea or land'.[3] Of course, there has been some confusion due to the occurrence of some words in the various literary works like *Kachchhapa, Bhrigukachchha* and *Pippalakachchha,* etc. But a careful study of these references points out that the word *'Kachchha'* broadly indicates the present Kutch, one of the western most districts of the present Gujarat State.

It has been argued by some scholars that *'Kachchhapas'* and *'Panis'* of *Patala*, as mentioned in the Vedic literature, belonged to Kutch. The position of *Patala* has not been clearly established. Besides, the *Panis* themselves are subject of controversies as some scholars identify them with the Phoenicians of the Second Millennium B.C. It is not certain whether the reference is to a lower Sind region or to Kutch, and hence it is not of much utility.

The earliest literary reference relating to Kutch is available in the *Ashtadhyayi* of Panini wherein he refers to *Kachchhadibhyashcha.*[4] The *Karika,* of course, a later work on Ashtadhyayi, cites under *'Kachchha', 'Darukachchha'* and *'Pippala Kachchha'* and under *Agni, Kandagni* and *Vibhujagni.* Agrawal[5] has rightly identified *Kachchha* with modern

[1] Spate and Learmouth, *op.cit.*

[2] B.C. Law, *Historical Geography of Ancient India* (Paris,1954), pp. 11-14.

[3] Apte, *Students English-Sanskrit Dictionary,* (Delhi, 1986), p.128; N.L. Dey, *Geographical Dictionary,* (London, 1927) p.32; D.C. Sircar, *Studies in the Geography of Ancient and Medieval India,* (Delhi, 1960) p.104.

[4] S.M. Katre, *Paninian Studies,* (Poona, 1968), p.153; H.D. Sankalia, 'Prehistory and Early History of Kutch', *Journal of the Gujarat Research Society,* 1968, p.240.

[5] V.S. Agrawala, *India as known to Panini,* (Allahabad, 1953), pp.65-66.

Kutch, *Darukachchha* with the sea coast of Kathiawar (literally equivalent to *Darukashtha), Pippalakachchha* with the Delta of Sabarmati, Mahi, Narmada and Tapti rivers, of which the old name is still preserved in *Pippla* or *Raj-Pippala*. According to him *Agni* refers to the 'burning sandy' tract of the Rann while *Vibhujagni* refers to the Great Rann of Kutch in the northwest and *Kandagni* to the Little Rann of Kutch, and surprisingly its ancient name still echoes in the name of Kandla, a famous port of Kutch in the Gujarat region at present.[1]

Thus, as early as in Panini's time (i.e., *circa* 500 B.C.) it could be logically inferred that Kutch was surrounded in the northwest by *Vibhujagni* (Greater Rann of Kutch) and *Kandagni* (Little Rann of Kutch) in the east and by the sea in the south. Panini also mentions the towns or regions ending with *Kachchha* (IV-2-126). Agrawal feels that these were situated all-along the coastline from *Bhrigu-Kachchha* (modern Broach) to the region of the present day Kutch. Persons, commodities and animals were also named after *Kachchha;* since these were, in all probability, very characteristic of *Kachchha* areas and such nomenclature was quite appropriate. The *Kachhikas* were known for their turban *(chuda),* speech *(jalpita)* and laughter *(hasita).* The people of *Kachchha-Janapada* were known as *Kachchhikas*. Even today, when any one moves in Kutch and meets the people he does find the typical turban, speech, and laughing nature of the folks of Kutch.

Of course, in the Buddhist Canons there are references to *Bhrigu Kachchha*, i.e. Broach, but there does not seem to be any direct reference to Kutch. It is probable that the merchants from prosperous *Anga* might have passed through Kutch to *Sindhu-Sauvira*. This is an indirect inference of the author.

The Greek references to Kutch are also important and worth mentioning in this connection. Pliny has mentioned Odomboerae and Lassen has suggested that it was to be identified with Audumbari who lived in Kutch, but unfortunately there is not much support to Lassen's identification. However, Lonibare could be identified with the River Luni which falls into the Little Rann of Kutch at the northeastern extremity.[2]

According to the author of the *Periplus of Erythraean Sea* beyond the River Indus (Sinthus) there was another gulf called Erinion running towards its north which was not navigable and which was divided into two parts with shallow waters and shifting sands on the shore. The ships ran aground and, if they attempted passage, they were wrecked.[3] Sankalia[4] has rightly pointed out that 'these Ranns are situated respectively to the north and south of Kutch and are not found in the Gulf of Kutch.... This (Schoff's translation) is an accurate description of the Great and Little Rann of Kutch'.

Wilson was inclined to think that the kingdom of Sigertis might be the Greek form of Srigarta, as conjectured by Lassen, and might indicate Kutch, but Princep in 1837 identified it on the basis of the best copies of Strabo as a Prakrit form of Sorath.[5]

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[1] Agrawal, *op. cit.*, 51-52; M.R. Majumdar, *Chronology of Gujarat*, (Baroda, 1960), p.25.

[2] James Burgess, *Report of the Archaeological Survey of Western India*, 1885, p.190.

[3] Wilfred H. Schoff, *The Periplus of Erythraean Sea*. (London, 1912), p.38.

[4] Sankalia, *op. cit.*, 1968; Law *op. cit.*, p.44.

[5] H.H. Wilson, *Ariana Antiqua*, p.42; J. Prinsep, Essays, *J.A.S.B.*, Vol.VI, p.390; McCrindles, *Ancient India as described in Classical Literature*, (Calcutta, 1885), p. 36; Sankalia, *op. cit*

Ptolemy only mentions *Kanthi* or the Gulf of Kachchha and not to Kachchha as such. He says, "In Syrastrene on the Gulf of Kanthi". As per Mc`Crindle's version, it refers to the Gulf of Kutch, but Sankalia feels that it may mean the coastline and nothing more and it cannot refer to the whole of Kutch.

In the Bhisma Parva of *Mahabharata,* there is some reference to *'Kachchha Gopala Kachchhah'* which may suggest Kutch. A mention of Kutch is also met with in Vana Parva and Shanti Parva of *Mahabharata.*

In the *Aparanta* region as described in *Brahmanda, Matsya, Markandeya, Skanda, Vayu, Bhavishya, Padma* and *Agni Puranas,* the region of Kutch has always found a place.[1]

In Kalidasa's *Meghaduta,* there seems to be a reference to Kachchha in *'Kandalishchanu Kachchham'*. *Amarokosha* also mentions *'Jala Prayamanupam Syat Pumsi Kachchhastatha vidhah'*. Magha also mentions Kachchha in *Sisupalavadha*. The *Brihat Samhita* has an elaborate reference from the astrological angle wherein it refers that due to the contact of Venus, when the moon's orbit would be divided into two, the people of Kachchha will suffer for a period of seven months. Again it refers that, when the lunar eclipse will take place in Tula Rasi, there would be sufferings in Kachchha.[2]

The province of Kutch has been mentioned as *'Kie-cha'* by the celebrated Chinese Buddhist traveller Hiuen Tsang (or Yuan Chwang), who had travelled in Sindhu Sauvira, Gandhara, Malwa and Gujarat in the 7th Century A.D. According to *Siyuki* the country was 300 li in circuit with its capital at Kietsi-shi-fa-lo, i.e. Koteshwar. The name is rendered as Khajeshwara by Julian, Kachchheswara by Lassen and Koteshwara by Cunningham. It appears that it was 300 li, and not within circuit from Malwa. The Chinese traveller did not note any great ruler in the country,but observed ten Sangharamas with one thousand priests and many Hindu temples in Kutch at the time of his visit. It appears that Kutch was fully under the influence of Mahayana Buddhism during the time of the visit of Hiuen Tsang.

There is one more point which needs some attention here. The earlier view of the scholars that Yuan Chwang visited Kutch from Sind and that it was a part of Sind, does not hold good. The reference in this connection is due to some confusion. Sankalia has recently pointed out clearly that at the time of Yuan Chwang's visit, Kutch was not a part of Sind but was well included in Gujarat and that the Chinese traveller had visited Kutch from Malwa.[3]

In the Jain literature we have quite a few references to the Kutch. In the *Bhagavati Sutra* a reference is made to Kachchha and B.C.Law has identified it only with Kachchha. In the *Jambudvipa Pannati Sutra,* Angaloka is mentioned together with the countries of

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1 Umashankar Joshi, *Purano ma Gujarat*, (Ahmedabad, 1946); Majumdar, *op. cit.*, pp. 296-97.

2 Varaha Mihira, *Brihat Samhita*, 14-16, 22.

3 Samuel Beal, *Buddhist Records of the Western World*, (London, 1906), Vol. II, p.266; Thomas Watters, *On Yuanchwang's Travels in India*, (London, 1905), Vol. II, p. 245; *Gazetteer of Bombay Presidency*, Vol. I, (1880), p. 130; Sankalia, *op. cit.*; R.C. Majumdar and A.D. Pusalkar, *The Age of Imperial Unity*, (Bombay, 1951), p. 15.

Simhala, Babara, Cilayoka, Javandvipa, Arabaka, Ronaka, Alasanda and Kachchha as one of the countries which is supposed to be conquered by Bharata.

Again, the *Brihat Kalpa Bhasya* describes Kutch as a plain and beautiful land which was conquered by Bharata and where Jain monks were allowed to stay with householders.[1]

According to the *Kavyamimamsa* of Rajasekhara dated to A.D.900 the country lying to the west of Devasabha was called *Pashchaddesa.*

The Arab writers Ibn Khurdaba (A.D. 912) and Al Biladuri (A.D. 840) refer to Arab settlements on the coast of Kutch. Alberuni (970-1039) makes references to Kutch by its present name and also mentions one of the branches of the River Indus that was flowing into the Sind Sagar at the borders of Kutch.[2]

The aforesaid rapid survey of the relevant ancient Indian, Greek and Arabic literatures clearly brings out the fact that the region of Kutch was recognized, had a geographical individuality of its own and it was known from the earliest times though references to it are few but important. This is precisely due to the fact that the isolation of Kutch had been one of the most important factors which was responsible for its state of affairs. This fact is of considerable importance from the point of view of archaeological and historical investigations of the area.

E. WORK DONE SO FAR

In spite of the few stray literary references investigations have been carried out in a sporadic manner. The earliest available work on Kutch is by Capt. Robert Merville Grindlay who wrote as early as 1808, *Note* on *'Sindree'* in the *Burns Travels in Bokhara III* and later published in 1830, *Scenery, Costumes and Architecture.* Though not of too much value it certainly marks the beginning of some interest in Kutch and thus becomes important. Dr.Vincent's paper (1834) on 'Macedonian Conquerer's March through Kutch', *J.A.S.B.*, 1834 is interesting. Again in 1837-38, Lt. Postans had written two papers in the *Journal of the Royal Asiatic Society of Bengal,* Vol.VI, respectively on the Vikramaditya legend and the Jain temples at Badra. It may be pertinent to mention here that since 1808 a large number of papers have been written on the Geology of Kutch adding much valuable information regarding the Geology of the area including the Rann.

From the point of view of archaeology the most important period of activity was 1874 to 1879, when James Burgess brought to light some of the temples and inscriptions of Kutch in the *Report of the Archaeological Survey of Western India,* Vol.II. In 1879, Dalpatram Thakkar brought out the *'Report on the Architectural and Archaeological Remains in the Province of Kachchha', Selections..... Bombay Government* No.CLII. In 1906, Cousens wrote on the temples of Kera, Kotai, Kanthakot, Khokara and Bhadresvara in *Arch. Surv.Rep. 1905-1906.* Evidently, these are the authentic early works on some of the

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[1] *Jambuddivapannatti Sutra*, 52, Commentary by Santichandra, (Bombay, 1920), p. 217 a; Jagdish Chandra Jain, *Life in Ancient India as depicted on Jain Canons*, (Bombay, 1947), pp. 266, 291.; *Brithat Kalpabhasya*, 1, 1239.; *Vishesha Churni*, (Bhavnagar, 1938), p 38.

[2] H.M. Elliot, *The History of India*, Vol. I, (London, 1867), pp. 14 and 129; *Gazetteer of Bombay Presidency*, Vol. I, p. 131.

temples of Kutch. In recent years, only M. Dhaky made a systematic study of these temples and had incorporated it briefly in his learned monograph on the 'The chronology of the Solanki Temples of Gujarat', *Journal of the Madhya Pradesh Itihasa Parishad,* No.3 (Bhopal,1961). It was in 1922 that R.D. Banerjee brought out the three Kshatrapa inscriptions from Andhau in *Epigraphia Indica,* Vol.XVI, thus shedding new light on the epigraphical material from Kutch on Kshatrapa history, and in the last few years some more Kshatrapa inscriptions have been reported. M.R. Majumdar brought to light a Buddhist bronze image from Kutch which is an important find from the point of view of the history of the Buddhist movement in Kutch. Stray occurences regarding provenance of Greek, Kushana, Gupta and Gadhiya coins have been also reported. The work of Ram Singh Rathod, *Kachchanu Sanskriti Darshan* in Gujarati is a very good survey of the cultural history of Kutch and he has tried to place all these threads in a systematic way. As a matter of fact, it is the only work at present which deals with a wide range of subjects pertaining to Kutch and also some archaeological finds.

In the sphere of prehistory and protohistory, very little work had been done prior to the survey made by the author. The relics of the Early Stone Age man were brought to light by Sankalia[1] from the River Sukhi in Nakhatrana taluk of Kutch in the shape of pointed ovate and choppers. It was K.V. Soundararajan who brought to light Middle Stone Age tools in the Nakhatrana taluk. The tools of the late Stone Age were first discovered in Kutch by Gordon, some thirty years ago. These sporadic surveys did show the presence of Stone Age man in Kutch in all the three stages.

In the field of Protohistory of Kutch, S.R. Rao and Soundararajan did the survey of the area and the latter also excavated at Desalpar. To assess the expansion of Harappan culture in Saurashtra and Kutch, particularly in the coastal areas, Rao[2] carried out explorations in Kutch and discovered a few Harappan sites and two of these are Desalpar and Somaghoga in the Nakhatrana taluk in Kutch which were considered by him as the earliest while the remaining being the 'Late Harappan'. Somaghoga also yielded a pottery of the Rangpur IIC sequence. Besides these, he discovered a few sites of the Rang Mahal culture of the early Christian era. Soundararajan's[3] excavations at Desalpar brought to light a Harappan fortified citadel showing a succession of Harappan and late Harappan deposits designated by him respectively as subperiods IA and IB. According to the excavator, "its ceramic contents are distinguished by a cream slipped bichrome ware represented in dish and bowl forms". From the deposits of both these subperiods, besides other Harappan material, ribbon flakes and blades of chert, almond-shaped points and arrow tips on chalcedony and two seals are worthy of mention.

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[1] H.D. Sankalia, 'Prehistory and Early History of Kutch', *Journal of the Gujarat Research Society,* 1968; *Indian Archeaology 1967-68 — A Review,* pp. 13-21 gives complete information regarding the explorations in Kutch carried out by Drs. H.D. Sankialia, Z. D. Ansari, R. S. Pappu V.S. Lele, D.B. Chitale, J.M. Nanavati and Atri of Deccan College, Poona, on Prehistoric sites and Shri J. P. Joshi of the Archaeological Survey of India on Pre-Proto and Early Historic sites of Kutch.

[2] S.R. Rao, 'Excavations at Rangpur and other Explorations in Gujarat, *Ancient India,* Nos. 18-19, (1962-63), pp. 176. 187-188.

[3] *Indian Archaeology 1963-64 — A Review,* pp.10-12.

3. SURKOTADA

A. DISCOVERY

At the time of its discovery, the mound at Surkotada appeared to be a potential site with not only its available rubble fortification exposed at places on the surface itself but also having an adjacent lower area yielding Harappan and other pottery and antiquities. During exploration, Harappan black on red ware, white painted black-and-red ware, black-and-red ware, reserved slip ware, unpainted red ware and coarse black on red ware were available at the site. The Harappan types in red ware were represented by a thick sturdy jar, a perforated jar, a dish, convex sided bowls both in buff and red ware, bowls in plain black-and-red ware and also those with white paintings consisting of two groups of four vertical strokes on the interior, fragment of red ware, base of dish-on-stand with raised edge painted in black horizontal bands over the base. Almost all the Harappan shapes were in conformity with the material available at other Harappan sites. Sherds of Reserved slip ware with wavy lines are comparable to similar materials from Lothal-A and the lowest levels of Mohenjo-daro. The design repertoire in red ware consisted of horizontal bands with roundels available in the Bhadar Valley and Saurashtra; brownish horizontal lines over a cream surface, broad fish-scale design in black over a reddish surface, black horizontal bands and hatched rectangles are frequently available in the Harappan pottery in Gujarat.

During the course of exploration chert blades, a large number of blades and fluted cores on semiprecious materials, shell and terracotta bangles and terracotta cakes were also discovered.

B. THE SITE AND ITS ENVIRONS

The site at Surkotada (Lat. 23° 37' N, Long. 70° 50' E) is situated at a distance of 12 km northeast of Adesar in the District Kutch, Gujarat. It is 160 km away to the northeast of Bhuj. The mound at Surkotada [Pls. I—IV] stands on a landscape surrounded by an undulating rising ground clustered by hillocks of current-bedded sandstone, capped by a volcanic trap over which lies red lateritic soil, thereby giving a reddish-to-brownish colour to the environment. The area around is having scanty vegetation which mainly consists of cacti, small *Babul* and *Pilu* trees and thorny shrubs of stunted growth, all looking like green patches over the red surface.[1] The mound has an average height of five-to-eight metres (east-to-west) and was

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[1] *Present flora and fauna in the vicinity of Surkotada*: *Azadirachta indica* (*Neem*) *Calotropis sp.*, *Acacia sp.*, *Tamarindas sp.*, *Mangifera sp.*, *Ricinus communis* and citrus near water resources. The 'Zare' tree which yields 'Piloo' or 'Pichu' edible fruits ('Bagad ka Mewa') also occurs in Surkotada region.

Cultivated Plants: *Allium sp.*, (*onion*) *Sorghum sp.*, *Triticum sp.*, *Arachis hypogoea*, *Lycopersium esculentum* (Tomato) *Gossypium* (*Cotton*). Irrigation is carried out presently by well water.

Surkotada fauna in current times include *Bos indicus*. (The Zebu) *Babalus Bubalis* (Buffalo), *Camelus dromedarius*, (Camel) *Equus caballus* (Horse), *Equus asinus* (Donkey), *Canis familiaris* (Dog), *Capra hircus aegagrus* (The goat), *Ovis Vignei* (The Sheep), The Indian Wolf, *Axis axis* ('Chital'), *Antilope cervicapra* (Black Buck), *Ursus sp.*, (Bear), *Lepus sp.*, (Hare), *Varanus sp.*, (Lizard), *Pavo cristatus* (Pea bowl), vulture, *Milrus sp.*, (Kite), *Corvus sp.*, (Crow) *Gallus sp.*, (Fowl), sparrow and pigeon. Absence of *Rhinoceros Unicornis* (Rhinoceros) and *Elephas maximus* (Elephant) in the current funnal assemblage is conspicuous.

discovered by the author during the course of his exploration in Kutch in December,1964. It is higher on the western side and lower on the eastern side (Fig. 3). The length of the mound from north to south, including the lower portion, is 160 metres while its width is 125 metres. From the ground survey and the morphological examination of the physical features of the area between the mound at Surkotada and Adesar, it appears that in ancient days, a river, 3/4 km wide (now only a small *nala*), was flowing past the southern side of the mound and emptied itself further down into the Little Rann of Kutch. This river might have been a major source of attraction for the building of the settlement at this place.

C. PLANNING AND OBJECTIVES OF THE EXCAVATION

Keeping in view, the topographical features of the mound and its promising potential of having a higher fortified citadel and a lower residential area, in the first season a contour plan of the entire mound was prepared and the surface was marked in grids of 10 m squares (Pl.V). After that, 4 m square trenches, i.e., one quadrant of each 10 m square leaving 1 m baulk on sides, were laid in a continuous row from east-to-west to find out: (i) any citadel rampart and structures there in between, (ii) a lower residential complex and its rampart, if any and (iii) the cultural sequence at the site by deep digging at a few points in the higher and lower areas of the mound. At the close of the season, on the western side of the higher mound and eastern side of the lower mound the area of excavation was extended to uncover the rampart, house complexes, and bastion of the residential area respectively. In the second season, the main objectives of the work were fivefold: (i) to excavate at a few more points to confirm the stratigraphical sequence established in the last season, (ii) to find out structures of the earliest period in the 'citadel' and the 'residential complexes, (iii) to uncover the rampart, gateway, bastions and a house complex in the citadel area and to expose the rampart of the residential area, its outer gate and a complete house complex in the southern half of the mound belonging to the latest period at the site and also to determine the exact size of the 'citadel' and 'residential' complexes, (iv) to locate the cemetery and find out the burial complex, if any, and (v) to collect more animal skeletal remains with a view to study the process of domestication in a stratified sequence. To realize these objectives, an area of 140 x 45 m on the southern side of the entire mound was excavated horizontally in squares of 10 metres. Trenches were also taken (1) on the western side of the 'citadel' and the lower 'residential' area of the mound to check up the width of each of the complexes, (2) in between the area to find out the gate for intercommunication, and (3) also in the centre of the respective area to attest to the stratigraphical sequence and lay bare the earliest structures without disturbing the later building activity. The cemetery belonging to the earliest period was located to the northwest of the habitation and four burials were opened.

The second season's digging also confirmed the threefold sequence of cultures as established earlier and no cultural break could be discerned at any point. The Harappan culture more or less continued at the site throughout. In the light of the second season's excavation, the sequence has been finally labelled as I A, I B, I C instead of I, II, III as indicated and reported earlier.

D. SUMMARY OF RESULTS

The excavations at Surkotada have been significantly rewarding in unfolding a sequence

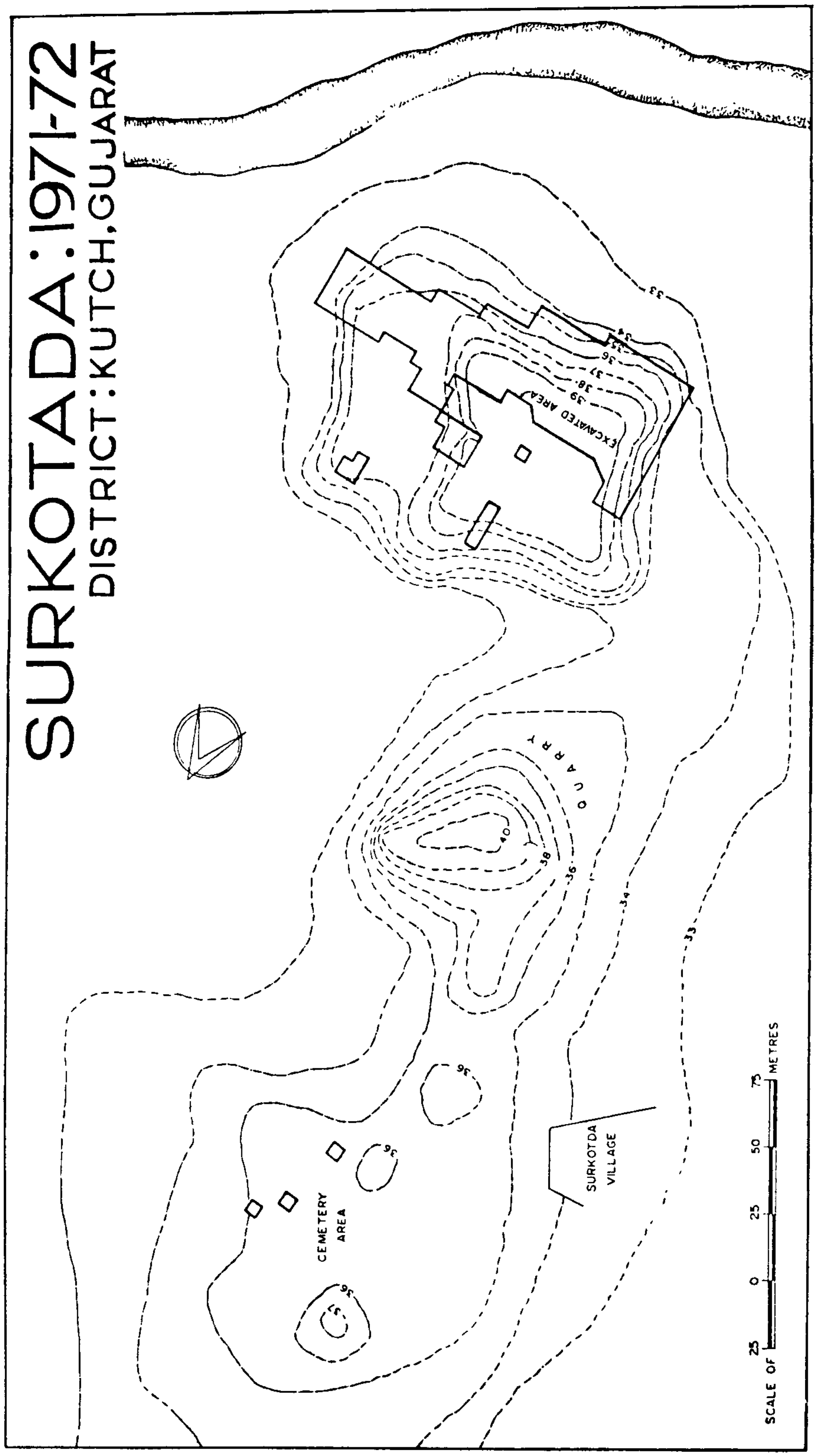


Fig. 3. Contour plan.

of three cultural subperiods well-within the span of Harappan chronology and this fact has been attested to by the C-14 dating, i.e. *circa* 2300 B.C. to 1700 B.C.[1]. The beginning might perhaps also be slightly earlier on the basis of relative chronology.[2] The Harappans had a fortified citadel and residential annexe in Period IA and the same pattern of settlement had been maintained through the successive subperiods IB and IC. In the later two subperiods coarse red ware and white painted black-and-red ware using folks respectively came to the site, yet the Harappan influence continued in a substantive way till the last occupation as attested to by the pottery, chert blades, weights and measures, beads, terracotta cakes, cart frames and steatite and terracotta seals. This is a very interesting feature in the make-up of the cultural life of about six centuries at this site. The remarkable features which have been noticed at Surkotada are: (a) some non-Harappan wares in Period I A, e.g. cream slipped polytone ware; a red slipped ware akin to pre-Harappan traditions of Kot Diji and Kalibangan, a Reserved slip ware showing contacts with Ur, Brak and T.Jidle on one side and Mohenjo-daro, Lothal and Desalpar on the other, and (b) complete absence of white-painted black-and-red ware in Period I A. This ware occurs only in Period I C. Besides these, there is no cultural break in between the occupation. At the end of the period I B, of course, there was a huge conflagration but the Harappans and coarse red ware using people continued to live at the site.

Now, let us briefly examine the settlement pattern, pottery and antiquities of all the three subperiods showing Harappan and non-Harappan traits and visualize the picture of the Harappa culture at this site in a span of six hundred years with a view to assess the elements of transformation or coexistence or continuity of culture components.

(a) The Settlement Pattern

1. The area of citadel and residential complexes remained the same through the successive subperiods.
2. The thickness of the citadel rampart decreased from 7 m in the Period I A to 4 m in the Period I C. The width of the rampart of the residential complex remained more or less the same, i.e., about 3.40 m.
3. In all the three subperiods, mud bricks measuring 10x20x40 cm have been used.
4. While in the Period I A mud bricks, mud lumps and rubble have been freely used in the construction of the rampart and other structures, in Period I C the rampart has been made fully of rubble and chiselled stones. This change shows a preference for stones involving developed techniques of quarrying with better tools.
5. Drains are available in the Periods I A, I B and I C.
6. Considerable elaboration has been noticed in the gateway of the citadel in the Period IC as compared to the Period I A. The entrances in the southern and southeastern sides in the citadel and residential annexe respectively are just simple openings of moderate dimensions without any architectural embellishment.

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[1] For C-14 dates of Surkotada, see below, p. 53ff.

[2] M.E.L. Mallowan, 'Excavations at Brak and Chagarbazar', *Iraq*, Vol.9, p.191.

7. While in Period I A the citadel and residential complexes had a passage for intercommunication through a ramp in the eastern side of the rampart of the citadel, in Period I C an elaborate passage passing through the eastern rampart with a semicircular pedestal in the citadel side, attaching architectural importance to the area, joined the two areas.

8. The structural features of the outer gateways and the passage for intercommunication preclude the possibility of any vehicular traffic within the citadel and the residential area.

9. The overall picture of the settlement pattern is very much elaborate in the Period IC. However, in the residential complex the streets are not straight.

10. At Surkotada, throughout, a compact citadel and residential annexe complex has been found (Pl. VI), but no city complex has been unearthed. Of course, beyond the *nala* about 500 m southeast, there is one low mound, now mostly washed away, which may represent some sort of a habitation but the Harappan vestiges are scarce. Most probably, Surkotada was a garrison complex to control the eastward movement of the Harappans. A little thinking in this connection is desirable.[1] Possibility of the existence of a large settlement in the immediate vicinity is rather remote. In an expansion of the people to further areas this hypothesis cannot be ruled out particularly when the Harappans were to reach Saurashtra. It is interesting to note that the citadel complex at Surkotada having a residential annexe is remotely comparable with the citadel mound at Kalibangan and Kot Diji complex.

(b) Pottery

1. The occurrence of Harappan pottery in Period I A is 93%, in Period I B is 40% and in Period I C is 35%.

2. The non-Harappan pottery, e.g., red slipped Polychrome ware, polytone cream slipped ware, reserved slip ware and deep red Amber slipped ware with a waxy touch, in Period I A is only 7% but in later periods, too, it occurs sporadically. This assemblage though small does show extra territorial affinities and contacts in the make up of the Harappa culture of Period I A. Excepting reserved slip ware, other wares are not found up to this day either in Mohenjo-daro or Lothal. The reserved slip ware shows earlier contacts with West Asia.

3. The shapes in coarse red ware in Period I B are limited to vases, basins, dishes and bowls of various types and some Harappan shapes are also available in it.

4. In Period I C the black-and-red ware and white painted black-and-red ware certainly show the influx of a new people. The bowls, vases and a high necked jar shaped in black-and-red ware are akin to Ahar and Lothal. Stud bowls in red ware and black-and-red

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[1] M.S. Mate, 'Harappan fortification: A study', *Studies in Indian Archaeology*, Prof. H.D. Sankalia Felicitation volume, (Bombay,1970), p. 83. Mate has ruled out such possibility. In Kutch, Kotora, Kotadi, Surkotada and Desalpar are all well fortified settlements which seem to have existed for a considerable duration.

ware are available in Period I C. There is absolutely no evidence at Surkotada to show any stud handle of the bowls becoming shorter or longer suggesting local evolution. In fact, short stud handle appears at Surkotada for the first time in the Period I C.

5. The channel-handled bowl occurs in coarse red ware in Period I B.

6. The increased frequency of Harappan pottery from certain levels of Period I C shows a fresh lease of life, the reason for which might possibly be a fresh wave of Harappan immigrants. The frequency of Indus goblet increases in these levels.

(c) Antiquities

1. Seals are available from Period I A to I C but the seal from Period I C is slightly crude, with no depiction of an animal but has only a legend in pictographic script.

2. Sherds painted with the Harappan pictographic script are available from the upper levels of Periods I A and I C.

3. Etched beads are available in Period I C.

4. Typical Harappan antiquities, for example, chert blades, stone sling balls, querns, weights and measures, gamesmen, terracotta wheels, cart frames, beads and triangular cakes are available from all the levels of the two successive Sub-periods.

5. Terracotta bulls are available in Period I C only.

6. Few *Linga* type conical objects are available from the middle levels of Period I A.

7. No terracotta mother goddess of the Indus-type or bird whistles or rattles are available from any of the levels.

8. A good number of very crude or hurriedly made bone tools, e.g., digging tools, awls, burnishers, burin, scrapers, points, tanged points with re-touching and polished due to use or tips tempered by burning have been found from all the levels.

9. The copper objects found at Surkotada show that in the Period I C copper technology was popular and more copper objects are available in this period than in the earlier periods. Possibly, the increase in the number of copper objects in later periods can be ascribed to the possible contacts of the Harappans at Surkotada with white painted black-and-red ware using people, who, in turn, had contacts in southeastern Rajasthan, particularly in the Banas valley.

(d) Animal Bones

A general study of the collection shows that these bones can be classified broadly into three categories.

1. Those animals which were either domesticated or were in process of domestication: cattle,sheep and goat, dog, swine, ass (*Equus onager indicus*), horse (*Equus caballus Linn*), camel and fowl.

2. Those animals that lived in the houses or in the vicinity of the settlement: dog, shrew, rat etc.

3. Wild animals including those that were hunted for food: nilgai, antilope, deer, hyaena, wild boar, wolf, ass, comb-duck, hare, rabbit and fresh water fish.

Apart from these, we unearthed elephant tusks from the last period of occupation. Occurrence of elephant tusks in the site does not mean that the animals lived near by. No other skeletal remains have been recovered from the excavation. The tusks were probably imported for making ornaments, etc.

The presence of a large number of bones of young animals like those of cattle, sheep and goat indicate that the people of Surkotada practised domestication of these animals from the very beginning.

1. The most important feature of the collection is the occurrence of bones of *Equus caballus Linn* in the later period of occupation. Lots of *Equus* bones, right from earlier to the top levels have been recovered. A majority of them have phalanges and teeth.
2. A closer examination of the third phalanx (found in good number) of cattle towards the upper strata shows the increasing dependence of man on this animal for draft purposes. The bony growths on the third phalanx of mostly *Bos* show that the people were practising a lot of agriculture that required the use of *Bos* up to a stage till bony growths developed on these phalanges.
3. Decrease in the area occupied by the medullary cavity of long bones from the lower to upper levels indicate decrease in the hazardous and insecure living conditions of the animals. Normally, animals known for their agility and capacity to fight forest hazards have a thick, compact tissue with a well defined medullary cavity.
4. In later periods there appears the introduction of quite a large number of domesticated species. This can be due both to a gradual domestication by the people of Surkotada and to an introduction by the new immigrants.
5. A general observation shows that, normally, the bones from the lower levels are larger in size and more robust than their counterparts from the upper levels. This can be ascribed to a gradual decrease of wild variety and rise of a weaker breed in the upper levels, due to shortages of food influenced by some climatic changes in the area. There appears a gradual decrease in the practise of hunting. We get evidence of more stall-feeding and breeding in the I B and I C Periods.

(e) Burials

That the people of the Period I A were practising pot-burials (with or without bones or charred bones) as one of the modes for the disposal of the dead is evidenced by the exposure of four such burials in the cemetery located to the northwest of the habitation. Practice of keeping a huge slab on the top of the pit or making a stone cairn over the pit or placing a vertical slab in the western side of the grave along with the cairn, are rather unusual and unprecedented features in the burial traditions of the Harappans as known so far.

4. CULTURE SEQUENCE AND MAIN CHARACTERISTICS OF DIFFERENT PERIODS

A. PERIOD I A.

1. Structures (Figs. 4-5)

The excavations show that the earliest occupants of Surkotada were Harappans having some affiliation with antecedent culture. These Harappans built a 'citadel' with mud-brick and mud-lump fortification having a rubble veneer of five to eight courses at its base on its inner side over a raised ground of hard yellow rammed earth (average height 1.50 m. The basal width of the rampart was approximately 7 m. It was plastered on the inner side. At a later stage in this period a buttress of mud-brick, having a width of 1.70m with rubble cushioning, was provided on the eastern side of the citadel rampart [Pl. VII]. The citadel had two entrances, one on the southern side and another on the eastern side, for communicating with the residential annexe. Around the residential area was also provided a mud brick fortification having a width of 3.25 m and a gate of which only one arm could be exposed.

Remains of the houses of rubble masonry were found during this period [Pl. IX]. Though three phases of structural activity have been recognized, no complete house plan could be exposed. In the residential area a drain with two phases of construction and a bathroom with a small platform and a soakage jar kept outside attest to the well known sanitary arrangement and drainage system of the Indus culture.

2. Pottery

Typical black over red pottery of the Harappan along with its significant local variant having a brick-red core with naturalistic and geometric designs has been found in profuse quantity consisting of 93% of the total assemblage. Scenes depicting the sun-motif, pipal leaves, banana trees, deers, cranes, peacock, fish and fish-scales, latticed bands and lozenges, opposed solid triangles forming a battle-axe pattern and dots separated or joined together with zig-zag lines are very fascinating (Fig. 13). The well known Indus goblet and beakers, although few, along with dish-on-stand, perforated jars, cups with perforated lug-handles and flanged-rim jars with 's' shaped profile and other typical Harappan pots are found. Besides, a few polychrome sherds having consecutive arches painted in black and white and a few vases with the mat surface and broad black bands on the neck seem to be reminiscent respectively of the pre-Harappan Kalibangan and Kot-Dijian types.

A significant feature of this period is the find of a number of distinct, slow wheel thrown fabrics, viz., (i) a red slipped polychrome ware having narrow or wide mouthed vases with long concave necks or short out-turned rims, sometimes with a ridged shoulder, basins with a slightly carinated profile, convex sided bowls with in-turned rims decorated

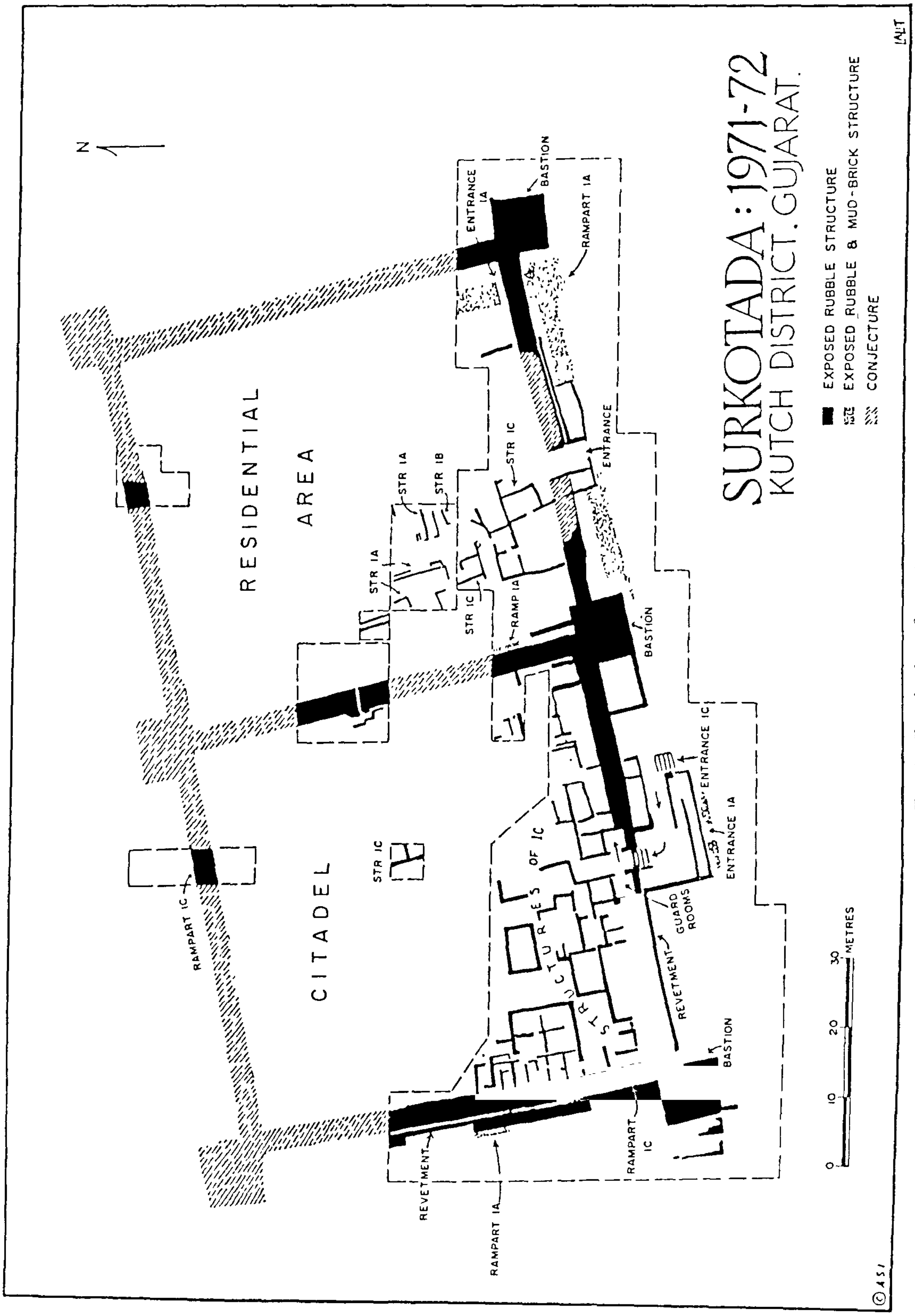


Fig. 4. Sketch plan of structures

in black to purple and white, with designs comprising of horizontal rim bands, multiple horizontal or vertical bands filled with latticed patterns or wavy lines, hanging multiples straight or wavy tassels, consecutive arches having latticed props and pillars filled in with vertical wavy lines, topsy-turvy triangles on a line within a band having empty spaces sometimes filled in with lattices, pendant triangles with apexes joined by double wavy lines, chain patterns and lattices joined by single or multiple horizontal lines drawn across them within bands; (ii) a polytone cream-slipped ware having vases with long or short concave necks, wide mouthed jars with short out-turned rims, basins and bowls with incurved rims and bowls with externally thickened and bevelled rims and dishes and bowls-on-stand including one which looks more like a broad based tumbler with the design repertoire painted in shades varying from sepia to dark black consisting, in addition to those mentioned above, oblique slashes within borders, meandering latticed ovals, chequer-board pattern with alternating hollows and solid squares or squares filled in with wavy lines, latticed circles, circles enclosing a solid one; (iii) a reserved slipped ware, comparable to that found only in the earliest levels of Mohenjo-daro and Lothal and also in the Sargonid levels of Brak, Ur, Kish and T.Jitle[1] in the Balikh Valley, decorated with horizontal bands and/or wavy patterns in bluish, or sometimes reddish, hue; the forms reconstructed for the first time include hole-mouthed globular bottles, concave necked vases and basins with incurved rims and dish-on-stand. (This ware in a meagre quantity is also available in the two subsequent periods); and (iv) a deep Amber Red slipped ware of a waxy touch is represented by a few fragmentary sherds of a dish-on-stand and concave necked vases.

All these wares, never exceeding 7% of the total, though appearing almost from the very beginning of the occupation, show a marked concentration, in the upper half of this period.

The occurrence of these apparently non-Harappan ceramic traditions, particularly that of the reserved slipped ware, seems to be of immense importance in establishing the extraterritorial contacts. Another significant point, in view of the contrary evidence from Lothal, is the total absence of a white painted black-and-red ware, which characterizes the final-I C - Period of the occupation at this site.

3. Antiquities

Terracotta, painted and unpainted balls, bangles, wheels, cart frames, terracotta cakes, stone pestles, saddle querns and sling stones, cubical weights, chert blades, some of which are even 12 cm long, beads of steatite, lapis lazuli, carnelian, faience and terracotta, copper rings, bangles and a spearhead are other noteworthy objects found in this period. Some bone tools and a fragmentary ivory comb and a piece of charred rope [Pl. X], a large number of *linga* type cult objects of unbaked clay add to the richness of the assemblage. Few potsherds bear evidence of the Harappan script painted on them. Besides, a steatite seal with a typical unicorn engraved on it along with the pictographic script is a valuable find from the upper levels of this period.

[1] Mallowan, *op. cit.*, p. 19.

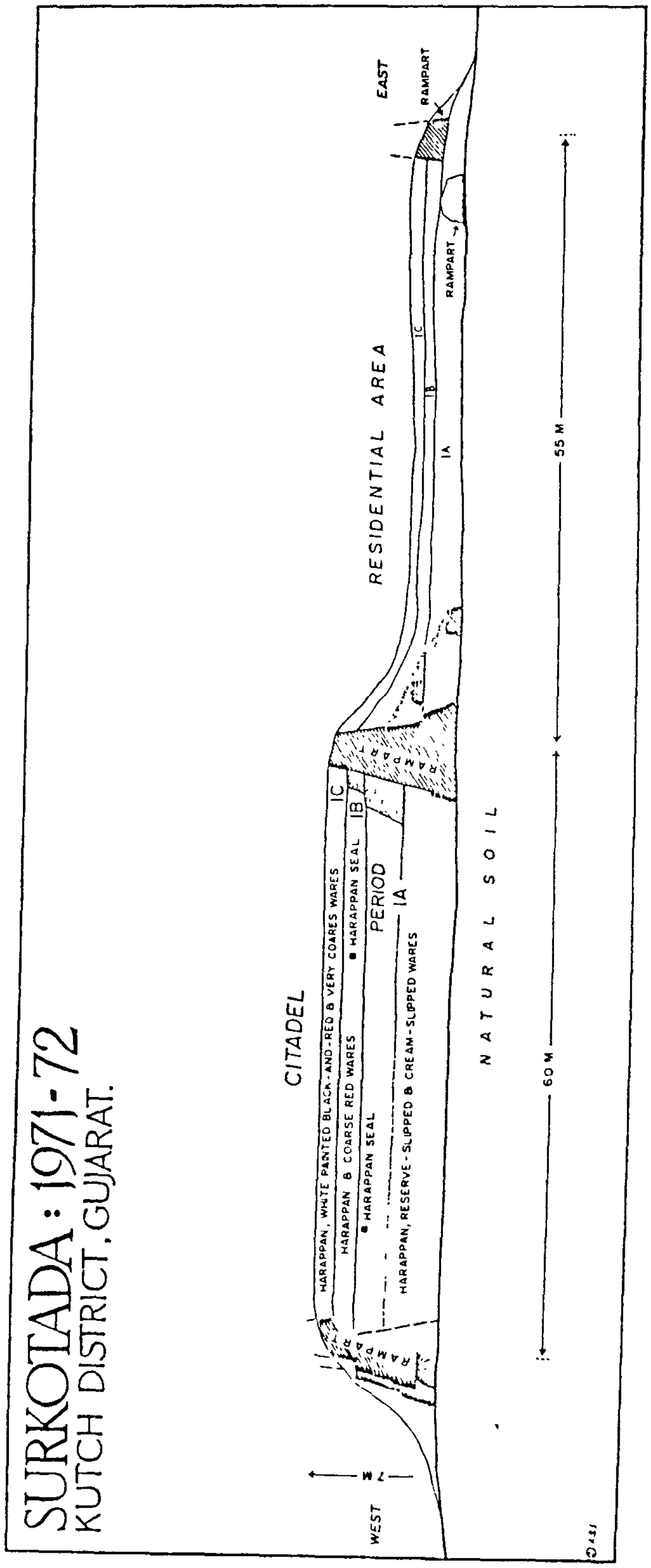


Fig 5. Schematic section

4. Burials

That the people of this period were practising pot-burials with or without human bones as one of the modes of the disposal of the dead is evidenced by the exposure of four such burials in the cemetery located to the northwest of the habitation. The pot-burials were covered by a slab or a cairn and a vertical slab in the western periphery. This is an unprecedented burial practice.

B. PERIOD I B

1. Structures

In the middle levels of the occupation of the site, the continuation of the Harappan pottery precludes the possibility of any break in the sequence. However, the occurrence of a distinct coarse red ware along with beads and blades of semiprecious stones suggest the arrival of a new wave of people and appears to be sufficient ground for distinguishing a separate phase. In this period, two structural phases of rubble masonry could be distinguished. Though the same pattern of the citadel and the enclosed residential area, as evidenced earlier, was seen to continue, the width of the rampart was reduced to 6 m and a mud-brick reinforcement was provided to the innerface of the rampart of the citadel on the eastern side. Vestiges of an entrance in the southern side of the citadel and the one connecting it with the residential annexe have been also found.

2. Pottery

The ceramic tradition of this period consisted, besides the Harappan black over red ware in diminishing frequency, of a coarse red ware, which although starting from the middle levels of the Period I A upwards (2% to 10%) comes to form the bulk of the ceramic yield (up to 70%). Thrown on a slow wheel and hand finished or modelled to a larger extent, and less satisfactorily fired, it is represented by wide-mouthed vessels with short out-turned or vertical rims, concave necked vases, and basins with the rounded sides, having bowls with straight or convex profiles and featureless slightly incurved rims, and dishes with a rounded bottom, and platters with short straight sides and flat bottoms, occasional dishes or bowls-on-squattish stands or high ring-bases and a few bowls mostly in the upper levels with channel or stud handles. This ware is less frequently decorated with designs painted in black comprising of short vertical latticed bands, sometimes bordered with wavy lines and sometimes separated by what looks like a thorny bush, multiple horizontal bands criss crossed by groups of vertical straight lines, multiple wavy lines within horizontal bands and a fly whisk. Incised decorations comprising of a few crisscross bands and hatched lozenges, though lacking in variety, are, however, in evidence.

Besides this dominant ware, the white and black painted polychrome, the black painted cream slipped polytone, the reserve slipped and the deep red slipped wares are also found but their occurrence is highly sporadic.

3. Antiquities

The other noteworthy finds of the period are terracotta bangles, hopscotch, cakes, marbles, spindle whorls, chert and chalcedony blades; beads of terracotta, steatite, agate and carnelian; flat heavy celt measuring 25x10x1 cm; and a chisel measuring 12x1 cm of copper.

C. PERIOD I C

1. Structures

At the close of the Period I B a thick but uneven layer of ash indicating a widespread conflagration had been noticed throughout the site. Though it marks the advent, in the closely following Period I C, of a people using a white painted black-and-red as a *deluxe* ware, the continued existence of the Harappans does not admit of a break in the cultural sequence at the site. The new people, following in the footsteps of their predecessors at this site, constructed from rubble and dressed stones a citadel and lower residential complex having areas measuring respectively 60 x 60 m and 60 x 55 m. The massive rampart of the citadel has an average basal width of 3.50 m to 4 m with two squarish bastions on each corner in the southern side and is provided with a centrally placed gateway complex, having projection which carried steps and a ramp leading to the main entrance of the citadel having two guardrooms on either side. The width of the passage is 1.70 m. Besides this, an entrance from the lower residential area to the citadel was cut into the eastern rampart. A semicircular structure was provided on the citadel side of this passage. This, however, belongs to the earliest phase of structural activity in the Period I C. Subsequently, the passage was partially blocked and a drain was left on the southern side of the passage. The drain has two phases of construction and usage. All along the rampart and bastions extensive repairs in the form of one or two massive revetments are seen which might be due to the destruction caused by the river which flowed in close proximity. The citadel area has revealed the existence of houses, of which a house with nine rooms facing a separate rectangular structure is worth mentioning. There existed lanes and streets in between the house complexes. In the residential area, which was also fortified by a rampart wall with an average width of 3.40 m running from east-to-west and then turning north, there was a rectangular bastion built in two tiers at the southeastern corner with eight courses of rubble masonry. This areas also has a separate entrance on the southern side. Within this fortified residential area, a normal house was found to comprise of five interconnected rooms in the rear and a courtyard enclosed on the three sides, used possibly as cattle-pen; in front on the street there was a platform for sitting or for selling merchandize.

2. Pottery

In this last period of the occupation of the site, while the Harappan ware, including a relatively higher portion of pointed-bottomed Indus goblets, appeared to have a renewed lease of life showing a slight upward trend, the course red ware, though represented by

almost all the types of the previous phases, becomes only a subordinate element in the configuration of the ceramic assemblage. The distinguishing feature of this phase, however, is the introduction of a palpably handmade, very coarse red ware of granulated texture, which accounts for 40% to 70% of the ceramic yield. The types represented in this fabric include big storage jars with ledged shoulders, jars with short vertical or slightly out-turned rims, vases with long concave necks and a carinated profile, and basins with perforated vertical lugs, dishes, bowls, etc. The painted decoration is almost nonexistent, while the ware is distinguished for its simple applique and incised decorations comprising of fingertip impressions, fingernail incisions, vertically grooved applied ridges, and crisscross, zigzag incised lines. Associated with it is (i) a meagre amount (only up to 4.5%) of a white painted black-and-red ware represented by large and small bowls with or without carination, basins with short and thickened rims and with an incipient ledge at the junction with the round tapering body, and a few rare stud-handled bowls and a dish-on-stand. The interior surfaces of these vessels are painted in fugitive white with designs comprising groups of multiple straight or wavy lines and spirals, very often only the negative of which remains; (ii) an undecorated crude black-and-red ware (8% to 16%) having big storage jars with a few straight or wavy ridges on the shoulders, concave necked vases, flatbottomed basins with a regularly pitted interior surface; and (iii) a few red or cream sherds having, among others, spirals painted in black or purple and may represent a continuation, though much influenced by the black on red patterns, of the earlier recorded polychrome and polytone traditions.

3. Antiquities

Notable antiquities of this period are two hoards of steatite and carnelian beads, three etched carnelian beads, beads of agate and faience, cores and blades of semiprecious stones and a large number of chert blades, terracotta bulls, spindle whorls, hopscotches and balls, fragment of a square tank (17 x 17 cm), cart frames and wheels (diameter of one wheel is 15 cm). One very big chisel of copper measuring 30.5 x 2.75 cm and a hoard of copperbeads and bangles are the other remarkable finds, besides a terracotta seal with pictographic script, without depiction of any animal. Another interesting find is a big wheeled terracotta bull (framentary), which has the traces of painting on it, and the terracotta pan of a balance with two perforations for suspension with strings. Weights and measures of chert and agate and small gamesmen of stone and terracotta add to the richness of the assemblage.

About 200 m away from the main mound towards the south-western side beyond the *nala* in an area of 100 sq m the site is strewn with modules of semiprecious stones, waste flakes, fluted cores and blades. These are similar to the blades and cores found in Period I C level. It is highly probable that this spot could have been a factory area where some of the people of the Period I C manufactured these blades and supplied these to the settlement.

5. CUTTINGS

A. STRATIGRAPHY

In short, excavations in the 'citadel area' taken as a whole have revealed that here the total cultural deposit has an average thickness of 8.20 m having 21 layers in all. Layers from 21 to 11 with an average deposit of 4.40 m belong to Period I A having three structural phases. Two important things came to light, i.e., just above the natural yellowish soil, compact earth have been rammed to a height varying from 1 m to 1.50 m and the structures have been built over it. Layers from 10 to 6 having an average deposit of 1.60 m belong to Period I B with two structural phases. A huge deposit of ash all over the mound just at the end of the Period I B suggests a conflagration. Layers from 5 to 1 having an average deposit of 2.20 m belong to Period I C and show three structural phases. No desertion of the site is in evidence at any point. Antiquities and pottery show overlap between the Periods [Pl.VIII].

In the 'residential annexe' the average cultural deposit having an average of 10 layers has been 4.50 m to 5 m in thickness. Layers from 10 to 8 have a deposit of 1.20 m with three structural phases. Evidence of mud ramming to an average of 50 cm just above the natural soil has been recorded here also. Layers from 7 to 4 having a deposit of 85 cm with two structural phases belong to Period I B. Again, at the end of Period I B a huge conflagration having a varied deposit of ash has been observed. Layers 3 to 1 belong to the Period I C having a deposit of 2.50 m with three structural phases.


For understanding the stratigraphy of the area the trenches with the most representative features are described below to give a very clear picture of the habitation and structural activity:

(i) Section looking south across the Citadel and the Residential annexe (east-west, Fig. 6).

1. Trench No. XD1, Qd.3 and 4 Western rampart.
2. Trench No. A1, Qd.3 Central habitational area of citadel.
3. Trench No. B1, Qd.3 Central habitational area of citadel.
4. Trench No. ZA1, Qd.2 Central habitational area of citadel.
5. Trench No. D1, Qd.3 and 4; E1, Qd.3 and 4; F1, Qd. 3 and 4 Eastern rampart, inner and outer sides, located in between the citadel and the residential area.
6. Trench No. ZE, Qd.4; ZF12, Qd.1 to 4; G1, Qd3; J1; K1, Qd. 1, 3 and 4; K2, Qd.2, Residential complex, Rampart and Bastion.

SURKOTADA : 1971-72 DIST. KUTCH, GUJARAT.

SECTION LOOKING SOUTH



Concordance of layers - section looking south

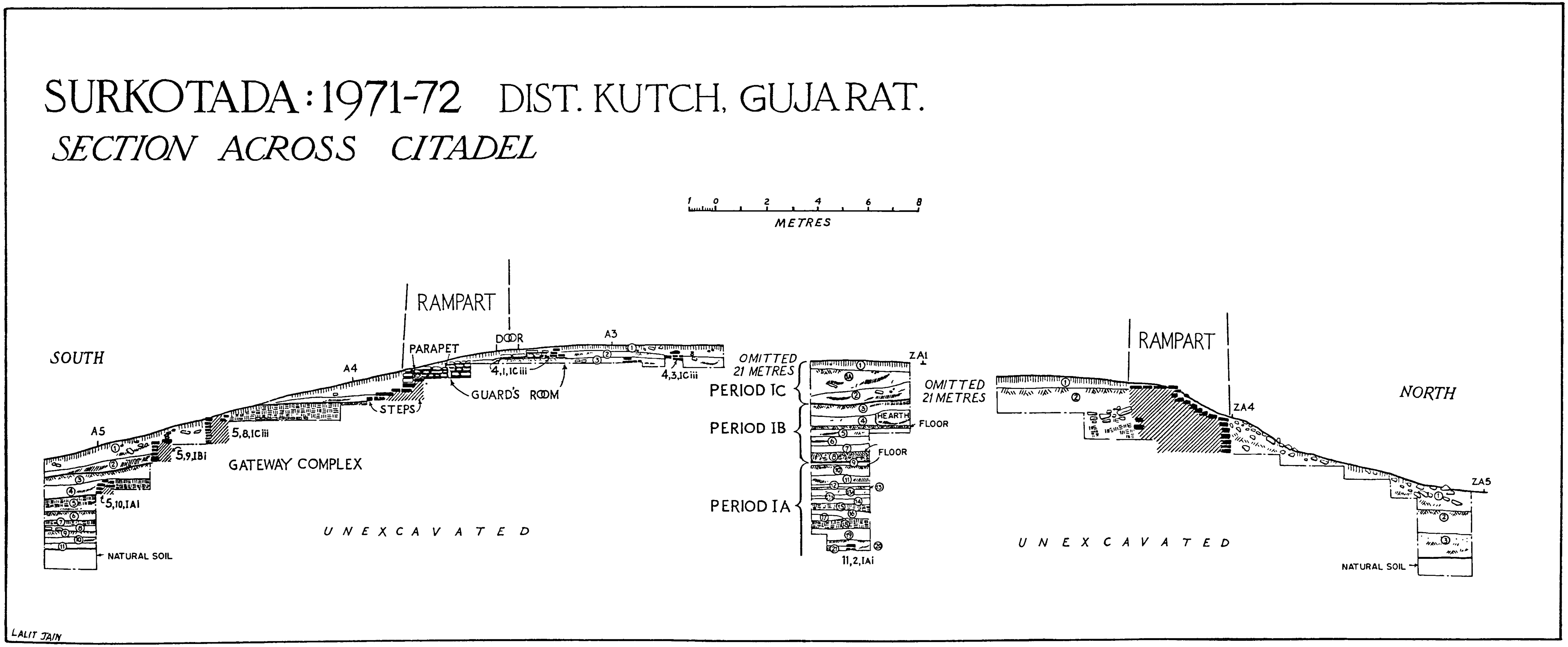
Period	K1	J1	H1	G1	F1	E1	D1	C1	B1	A1	XA1	XB1	XC1	XD1
IC	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	(2)	(2)	(2)	(2)	(2)	(2)	(1A)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
	(3)		(3)	(3)	(3)	(3)	(2)	(3)	(3)	(3)	(3)	(3)	(3)	
	(4)			(4)		(3A)	(2A)	(4)	(4)	(4)	(4)			
				(4)		Pit 1	(3)	(5)	(5)		(4A)			
								(6)	(6)					
									(6A)					
IB	(5)	(3)	(4)	(6)	(4)	(5A)	(4)	(7)	(7)	(5)	(5)			(3)
	(6)	(4)	(5)	(7)	(5)	(5B)	(5)	(8)	(8)	(6)	(6)			(3A)
		(5)	(6)	(8)	(6)	(5C)	(6)	(9)	(9)	(7)	(7)			
		(6)	(7)	(9)	(7)		(7)		(10)	(8)	(8)			
	(7)						(8)		(11)	(9)	(9)			
										(10)	(10)			
											(11)			
											(12)			
IA		(8)	(8A)	(10)	(8)	(6)	(9A)	(10)	(12)	(11)	(13)			(4)
		(9)	(9)	(11)	(9)	(7)	(10A)	(11)	(13)	(12)	(14)			(5)
		(10)	(10)	(12)	(10)	(8)	(11)	(12)	(14)	(13)	(15)			(6)
		(11)	(10A)	(13)	(11)	(9)	(12)	(13)	(14)	(14)	(16)			(7)
		(12)	(11)	(14)		(10)	(13)		(16)	(15)	(17)			
				(15)		(11)	(14)		(17)	(16)	(18)			
				(16)		Pit 3	(15)		(18)	(17)	(19)			
				(17)			(16)		(19)	(18)	(20)			
							(17)		(20)	(19)	(21)			
							(18)		(21)	(20)				
							Pit 3			(21)				
										(22)				
										(23)				
										(24)				
										(25)				

(ii) Section looking West across the Gateway complex, Citadel, Rampart and Habitation (north-south, Fig. 7).

1. Trench No. A5, Qd.2; A4, Qd.2 and 3; A3, Qd.2 and 3; A2, Qd.3 Gateway complex and southern Rampart.
2. Trench No. A1, Qd.3.
3. Trench No.ZA1, Qd.2 Habitational area in the citadel.
4. Trench No. ZA3, Qd.2 and 3; ZA4, Qd.2 and 3; ZA5, Qd.2 and 3 - Northern Rampart.

Concordance of Layers - Section Looking West

Period	*ZF1*	*A5*	*A4*	*A3*	*A2*	*ZA1*	*ZA4*	*ZA5*
IC	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	(1A)	(2)	(2)	(2)	(2)	(1A)	(2)	(2)
	(2)		(3)	(3)	(3)	(2)	(3)	(3)
					(4)			
IB	(2A)	(3)			(5)	(3)		
	(3)	(4)			(6)	(4)		
					(7)	(5)		
					(8)	(6)		
					(9)	(7)		
					(10)	(8)		
IA	(4)	(5)			(11)	(9)		
	(5)	(6)			(12)	(10)		
	(6)	(7)			(13)	(11)		
	(7)	(8)			(14)	(12)		
	(8)	(9)			(15)	(13)		
	(9)	(10)			(16)	(13A)		
	(10)	(11)			(17)	(13B)		
					(18)	(14)		
					(19)	(15)		
					(20)	(16)		
					(21)	(17)		
					(22)	(18)		
					(23)	(19)		
					(24)	(20)		
					(25)	(21)		


SURKOTADA : 1971-72 DIST. KUTCH, GUJARAT.
SECTION ACROSS CITADEL
METRES
SOUTH
NORTH
RAMPART
RAMPART
PARAPET
DOOR
A3
A4
A5
STEPS
GUARD'S ROOM
4,1,1C iii
4,3,1C iii
5,8,1C iii
5,9,1B i
5,10,1A i
GATEWAY COMPLEX
NATURAL SOIL
UNEXCAVATED
OMITTED 21 METRES
ZA1
PERIOD IC
PERIOD IB
PERIOD IA
HEARTH
FLOOR
FLOOR
11,2,1A i
OMITTED 21 METRES
ZA4
ZA5
UNEXCAVATED
NATURAL SOIL
LALIT JAIN

(i) Section Looking South across the Citadel and Residential annexe (East-West):

1. **Trench No. XD1, Qd.3 and 4:** This trench lies on the western slope of the mound and digging up to a maximum depth of 5.40 m B.S. revealed that the Harappans first raised the ground represented by layer 8, just above the natural soil, by ramming with mud. This layer consists of hard, compact yellow earth and has a thickness of 54 cm. The layer is universal. Over this strong foundation, the western citadel rampart of Period I A having eleven courses of mud bricks (size 10 x 20 x 40 cm) was built. Layers 7 and 6, consisting of loose-earth and streaks of ash with some hard patches of earth, are contemporary deposits to the rampart. The average thickness of this deposit is 40 cm. Layers 5 and 4, which are loose in nature, consist of clay, hard and compact earth chunks and the washed away material of the rampart, the average thickness of the deposit being 80 cm. The rampart of Period I A and Layer 4 is overlain by layer 3A having a thickness 20 cm and consisting of loose-earth and whitish clay and ash. Above this layer lies layer 3 which is 26 cm thick and is the building level of the revetment of the western citadel rampart with eighteen available courses belonging to Period I C. This layer is loose and ashy, and is an universal layer in the trench. Layers 2 and 1, each consisting of loose-earth, ashy patches and rubbles and loose-earth respectively with a top humus each have an average thickness of 14 cm. Excavation in this trench indicated the end of the rampart of the various subperiods on the extreme western side.

2. **Trench No. A1, Qd.3:** This trench is situated in the central portion of the citadel area of the mound and excavation has brought to light a good picture of stratigraphy. While we have seen the stratigraphy of the western side of the citadel area in trench XD1, Qd.3 and 4, here in the central area, digging has revealed that in trench A1, Qd.3 and 4 the people of Period I A built a raised ground. This feature has been further confirmed here as layer 25 to 22, just above the natural soil having thickness of 1.50 cm and of universal nature, consists of yellow, rammed hard compact earth and represent the raised ground described earlier. Here 7, STR 6, IA i, consisting of one course of mud brick running east-west is available. Its extant width is 0.35 m and length 1.75 m. Layers 24, 23 and 22 lie over this structural activity. Layer 21 is loose, having ash and charcoal with a thickness of 20 cm. Layer 20 is again an ashy, loose deposit having an average thickness of 50 cm. The top of this layer marks the second structural phase of Period I A. Layer 18 is of very compact earth having an average thickness of 20 cm. Layer 17 is locse and ashy with a thickness of 22 cm. Layer 16 is a very compact earth having a thickness of 20 cm. Layer 15 is compact and made of yellowish earth, and hard patches having a thickness of 22 cm. Layer 14 consists of compact earth with loose, brownish patches having an average thickness of 22 cm Layer 13 having a thickness of 22 cm. is a layer with ash, loose-earth and compact yellowish chunks. Layer 12 is a broad layer having width of 38 cm with considerable ash and charcoal, potsherds and loose-earth in it. Layer 11 is a compact layer of earth having a thickness of 15 cm. As a matter of fact, it is a floor level and represents the latest structural activity of Period I A. Over Layer 11 is built a stone wall 7, STR 5, IB i, having

only one course running east-west. The structure and Layer 10 mark the advent of Period I B and end of Period I A. It is made of compact earth with brown patches. It has an average thickness of 10-12 cm. Over this layer there is a rubble wall 7, STR 3, IB ii, running east-west having nine courses with a height of 1 m. Layers 8, 7 and 6 consisting of loose-earth and ashy patches are deposits contemporary to this wall and have a total thickness of about 1 m. Layer 3 seals the wall. However, layer 5 and 4 made of compact yellowish clay have a local nature and are not found universally in the trench. Layer 3 is a very broad layer having a large quantity of ash and loose-earth with an average thickness of 1.17 cm and seals 7, STR 2, I C i. This evidence shows that at the end of Period I B, and exactly at the early structural phase of Period I C, a great conflagration took place. Layers 10, 9, 8, 7, 6, 5 and 4 represent Period I B. Layer 2 is a loose ashen layer of earth having a deposit of 18-20 cm. Over it lies Layer 1 consisting of top humus and loose-earth having an average deposit of 50 cm.

3. Trench No. B1, Qd.3: In this trench, digging has been done only up to a depth of 6.65 m B.S. As the space became restricted in the lower level, further digging could not be undertaken. However, layer 21 which is partially exposed consists of compact, yellow earth, having a thickness of 24 cm at this stage. Keeping in view the stratigraphy in trench A1, Qd.3 and the level of the strata being the same, it appears that the top of this layer might be at the maximum height of the raised ground seen earlier in that trench. Evidently, this is a further corroboration. Layer 20, which lies above layer 21, having a thickness of 30 cm, is composed of compact earth, sand and streaks of ash. Layer 19 is also compact earth with sand and has a thickness of 24 cm. Structure No. 7, STR 1, IA ii, built on layer 20, is a wall running north-south in an oblique manner and has two courses of rubble. This and the adjoining hearth belong to the second phase of Period I A. Layer 18 is compact, yellow, hard earth representing a floor level having a hearth cut into it and is 30 cm thick. Layer 17 is again a loose layer consisting of few patches of earth and streaks of charcoal. Its thickness is 28 cm. Layer 16 is a very compact, yellowish layer having a thickness of 20 cm. Layer 15 is a broad layer having thickness of 70 cm. It consists of loose-earth, potsherds and ashen streaks. Layer 14, having a thickness of 44 cm, is also loose but has more ash. Layer 13 is composed of loose-earth and is 28 cm thick. Layer 12 is a layer consisting of loose-earth having ashen streaks with a thickness of 40 cm. Layer 11 is made of hard, yellowish earth and represents the latest phase of structural activity of Period I A at the site. A drain having one course of stones runs north-south to a length 1.20 m being cut in to layer 11. This layer marks the end of Period I A. Just above this layer, layer 10 lies with a thickness of 14 cm and consists of loose-earth and ashen streaks. Layer 9 consists of greenish, loose-earth with ashen patches and has few compact portions of yellow earth to a width of 70 cm. This is a layer which strikes against 7, STR 3, IB ii, a stone wall running east-west having six to nine courses and is contemporary to it. This structure has been built on layer 10 and sealed by layer 6A. Layer 8 is a small deposit of loose-earth which is a late contemporary of this structure. Layer 7 marks the end of Period

I B. Layer 7 having a thickness of 30 cm contains loose-earth, ash and potsherds. Layer 6A is a broad, loose layer consisting of ash and earth having a thickness of 45 cm. Layer 6 is also similarly loose but with some patches of hard earth having an average thickness of 35 cm. Layer 5 is a highly burnt layer with considerable amount of charcoal and ashes with clayey patches here and there and is 25 cm thick. Layer 4 is full of ash and has a thickness of 40 cm. Layers 3 and 2 consist of loose-earth and have a thickness of 20 cm each. Layer 1, a humus covering, is 20 cm thick at this place.

4. Trenches D1, Qd.3 and 4; E1, Qd.3 and 4; & F1, Qd.3 and 4: These trenches lie on the eastern side of the citadel area of the mound. The elevation of the mound running north-south shows the common partition rampart between the citadel area and the residential annexe. The excavation here up to the natural soil revealed a complete picture of the rampart in all the three periods, inner additions and outer repairs and the ramp in subperiods I A and I B. As a matter of fact, a comprehensive picture is offered by the sections looking south in these trenches.

Digging to a maximum depth of 8 m in D1, Qd.3 and 4 and 6 m in F1, Qd.3 and 4 revealed that the Harappans in Period I A raised the ground uniformly to an average height of 1 m represented by Layer 20 in D1, Qd.4, Layer 14 in E1, Qd.4 and 9, 10 and 11 in Qd.3. A feature to be noticed in E1, Qd.4 is the portion of a ditch cut into the natural soil which yielded material consisting of loose-earth, rubbles and sand. It appears that when the Harappans came here, it was a ditch or a natural depression in between the two areas which was filled up by the inhibitants with a view to level it for future structural activity in the area.

The Harappans built the first rampart of 1 m height over this rammed raised ground. The rampart consisted of mud bricks (10 x 20 x 40 cm) and mud lumps with a veneer of dressed and faced stones having seven courses in the inner side in D1, Qd.4 and ten courses in D1, Qd.3. It will be pertinent to point out that, the inner side gave the evidence that the rampart had no rubble veneer after seven courses in the bottom. Above these, fourteen courses of mud bricks and mud lumps are available. Both the inner and outer faces of the rampart show a batter of 20^0. The total available width of the rampart at this stage is 7 m. On the outer side in trench E1, Qd.4 it appears that the area was covered between the lower courses of the rampart (described above) and the 14, STR 13, IA i, which is made of ten courses. This filling is represented by Layers 13, 12 and 11 in E1, Qd.4 which are generally composed of chunks of compact and loose-earth, and at times, some ashy streaks. The make up of the layers gives an idea of a filling. The average thickness of the filling is 80 cm which slowly tapers down in E1, Qd.3. Here, Layers 8 and 7 comprising of loose-earth and small rubble give the falling height of the end of the ramp. Simultaneously in trench D1, Qd.4 in the habitational area of the citadel, Layer 19 comprising of reddish *murram* and compact earth having a thickness of 80 cm is available. At the end of this occupation layer, pit 3 has been cut into Layer 19 which seems to be a refuse pit of the Harappans yielding large amounts of

pottery, bones and ash. The material had been greatly encrusted with greenish ashy material suggesting water stagnation in the refuse pit. This has yielded, besides Harappan redware and cream slipped polytone ware, a Harappan sherd with graffiti. The maximum depth of pit 3 sealed by Layer 18 is 1.60 m. Layer 18 is a thick occupational deposit consisting of a yellowish band of earth and sandy streaks. It has a thickness of 50 cm. Layer 17 is a layer consisting of loose-earth and clay patches with reddish colour due to *murram*. It has a thickness of 30 cm. Layer 16 is a very hard, compact yellow layer having a thickness of 30 cm. Layers 19 to 16 belong to the phase 1 of the structural activity of Period I A. A mud plaster having a thickness of 5-10 cm has been put on the inner face of the entire rampart on this side.

While inside the citadel, Layers 18 to 16 had accumulated (2.20 m thick), outside the rampart, Layers 10, 9, 8 and 7 were accumulated in E1, Qd.4. These are the layers which had accumulated during the course of the use of the rampart. These consist of loose-earth, ash and clay chunks. At this stage, a need was felt to further increase the height of the ramp and 14, STR 12, IA iii, was built having two to seven courses filled up with earth and other loose material represented by 6, 5 and 4A. The average thickness is 80 cm. This is the second stage of the ramp. The top of 4 A outside the rampart is equivalent to the top of Layer 16 inside. Now taking the story inside, on the top of layer 16 a revetment of twenty courses of mud bricks (size 10 x 20 x 40 cm) having a width of 2 m was built over a cushion of one course of rubble. At this stage, it is worthwhile to mention that on the outer side of the rampart a substantial damage took place, the debris of which is represented by thick and even Layers 4 and 3B having a thickness of 1.10 m. These layers, besides the loose material, contain mud and brick chunks also. Even after the damage on the outer face, the basal width of the rampart remained 7 m because of the mud brick revetment inside, described above.

On the outer side in trench D1, Qd.4, after the mud brick revetment was made, Layers 15 to 8 were accumulated and are the contemporary deposits to this mud brick revetment. The total thickness of this deposit is 2.50 m. Layer 15 is compact but with an occasional sprinkling of ashy patches. Layer 14 is again a loose layer with ash. Layer 13 is compact earth. Layer 12 is a thicker layer having compact earth. Layer 11 is clayey and compact. Layer 10A is more loose. Layer 8 is a layer consisting of quite compact earth. The top of this layer marks the end of the habitational activity of Period IA in the inner side of the citadel. It has been already mentioned that the layer 3A marks the end of Period I A outside the rampart in trench E1, Qd.4.

Inside the citadel in trench D1, Qd.4 a further revetment of eight courses of mud bricks (10 x 20 x 40 cm) was made by the people of Period I B. This revetment is having a width of 1 m. Thus, at this stage the width of the rampart become 6 m. Layers 8, 7, 6, 5, and 4 represent the habitational deposit inside having a thickness of 1 m. Layer 7 is having yellowish loose-earth. Layers 6 and 5 are local layers consisting of loose-earth and ashen material. Layer 4 is a layer with compact

earth. This marks the end of the habitational deposit of Period I B. It will be pertinent to point out here that, after giving the revetment to the rampart inside, on the outer side the compact clayey yellowish deposit on top of 4A, 4 and 3B in Trench E1, Qd.4 suggest a ramp to climb up during this period. The end of this period is marked by huge ashen deposits in the trench E1 and named here as Pit 1 which had badly damaged the ramp of I B. Inside and outside the citadel, over layer 4 and 3B respectively on the vestiges of the rampart of I B, the people of I C built a solid rampart of rubble having a width of 4 m with twelve courses on the inner side and also of twelve courses in the outer side. When its outer face had collapsed the rampart was repaired by putting up a thick revetment of 1 m having eighteen courses of mud bricks with ashen mortar. This was coated with mud plaster. Layers 2 and 1 having a deposit of 1.50 m represent the fallen material of this rampart of subperiod I C. Inside the habitation, Layers 3, 2A, 1A and 1 represent the occupational deposit of 1.70 m thickness of Period I C. Layer 3 is a floor level of a house complex no. 8 having a pot embedded into Layers 4, 5 and 6. This layer is composed of loose-earth ash and potsherds. Layer 2A is composed of compact earth. Layer 2 is composed of very compact, yellowish earth. Layer 1A is loose ashy earth while Layer 1 is the top humus. The total thickness of these three layers is 1.80 m at this place.

5. Trench ZE 2, Qd.4: This trench is situated well-within the residential complex and digging has been done in the north side of the trench to a maximum depth of 4.80 m B.S. Here, after raising the ground to an height of 70-80 cm above the natural soil represented by hard, compact clayey and greenish-earth, i.e. Layers 10, 9 and 8, the Harappans built on Layer 8 15, STR 8, I A i, a wall of rubble stones running north-south having three courses. Just above Layer 8 there is a floor of very hard, compact clayey material having a thickness of 7 cm and contemporary to the above structure. Above it is Layer 7 with a thickness of 30 cm and having compact earth and potsherds. This layer is also a contemporary deposit of 15, STR 8, I A i. Layer 6 seals 15, STR 8, I A i, and is composed of potsherds, compact earth and ashen streaks. Layer 5 is similar in nature but has little more earth in it. Layer 4 is a deposit of loose earth having ashen patches. The deposit is 80 cm thick. Layer 4 marks the end of Period I A. Layer 3 is a compact layer with rubble and ash, etc. It has a thickness of 30 cm. It is contemporary to 15, STR 1, IB i, made of two courses and running north-south. Layer 2A having a thickness of 30 cm is composed of loose earth and ash, patches of clayey material and mud bricks. This layer marks the end of Period I B. Above it is layer 2 which is a huge ashen deposit of the conflagration; it has a thickness of 80 cm in average, over which lies layer 1A which is also ashen and very loose. It has a thickness of 1 m. Both these layers are divided by a burnt black line of charcoal. Layer 1 represents the top humus and loose-earth and has a thickness of 60 cm in this trench.

6. Trench ZF1, Qd.1, 2, 3 and 4: Digging in this trench up to a depth of 5 m gave a very fine sequence of structural activity in the residential annexe. As usual, here

also it has been found that the earliest settlers of Period I A built a rammed, raised-ground over the natural soil to a height of 80 cm represented by layer 12 which is composed of hard, yellowish earth on which drain A was built belonging to Period I A. In this area the structural activity of Period I A, represented by 15, STR IA ii built on layer 11 has been scoured by a huge pit having ashy, greenish material. This is a pit which has been cut into (5), (6), (7), (8), (9), (10) and (11), and it is sealed by another ashen pit of period I B. Layer 11 is a compact layer having a thickness of 50 cm. Layer 10 is again a compact layer having a thickness of 30 cm. Layer 9 is a layer with loose-earth. Layer 8 is a compact layer of earth having a width of 20 cm. Layer 7 is again a loose layer with earth and ash having a thickness of 20 cm. Layer 6 is a layer of compact earth, 24 cm thick. Layer 5 is 24 cm thick and is made of ash and loose-earth. Above Layer 5 15, STR 9, IB ii, having one course of stones has been built. The burnt ashy material seals this structure and marks the end of Period I B. Layer 4 seals this huge deposit of ash having a thickness 1.30 m. Layer 4 having a thickness of 40 cm is composed of loose-earth and potsherds. Over this layer, structures 11, IC i, ii and iii are built. Layers 3 and 2 are deposits of 35 cm thickness contemporary to this structural complex of houses. Layer 1 is top humus and has a thickness of 20 cm. It seals these structures.

7. Trench G1, Qd.3: Excavation to a depth of 4.80 m revealed that the habitation in this area also started over a yellowish rammed-earth platform measuring 30 cm and is designated as layer 17. On this is built a STR 9, IA i, composed of two courses of a wall of stones, running north-south having an extant width of 50 cm. Layer 16 is composed of loose ashy material having a thickness of 30 cm. This layer has yielded a red ware polychrome jar fragment having affinities with the Kalibangan Period I and Kot Diji pottery. Layer 15 is a compact layer of earth having a thickness of 27 cm. Layer 14 is somewhat broader having a thickness of 30 cm with loose-earth, patches of compact material and ash. Layer 13 is having compact earth in the upper-half and the loose-earth and ash in the lower-half. Its thickness is 30 cm. Layer 12 is a loose-earth layer with charcoal and ash. Average thickness is 20 cm. Structure 7, IA iii, built on layer 11, has two phases. The available thickness of the structure of six courses of rubble is 50 cm. Layer 10 is the contemporary layer of this structure. Layer 11 is a layer with compact earth patches and loose, ashen material. It is 38 cm thick. Layer 10 is a compact and broad layer of earth having 55 cm thickness. This layer marks the end of Period I A. Layers 9, 8, 7 and 6 are very loose layers having considerable amount of loose-earth, ash, charcoal, etc. The average thickness of the deposit is 1m. Layer 6 marks the end of Period I B. Layer 5 is a loose-earth layer. Thickness is 30 cm. Layer 4 is again a layer with loose-earth and ash. Thickness is 35 cm. Layer 3 is again a loose-earth layer but brownish in colour. Thickness is 40 cm. Layer 2 is a layer with loose-earth and rubble. Thickness is 30 cm. Layer 1 is humus having a thickness of 10 cm.

8. Trenches J1 and K1, Qd.3 and 4: These trenches fall in the eastern-most side of the mound. Being at the end of the residential area they give a good idea of the residential rampart. Here also it was found that the rampart was built over a raised

40 cm high yellowish earth platform above the natural soil and is termed as Layer 13 in J1, Qd.4. At the south eastern corner the Harappans of Period I A built a rampart of mud bricks of 10 x 20 x 40 cm having nineteen courses over a rubble and mud brick foundation of six courses in trench J1, Qd.3. The width of the rampart at this place is 3.60 m. At this corner only one arm of the entrance could be traced. Just outside the entrance ramp or rammed earth and random clay, bricks and brick-bats gradually rising to a maximum height of 80 cm over the raised ground have been found. On the inner side in Trench J1, Qd.4, the habitational activity of Period I A is represented by Layers 12 to 8. Layer 12 is a layer of rammed earth which slowly tapers down towards the inner side. It has a maximum thickness of 50 cm. Layers 11 to 9 are made of loose-earth and ashen material having an average thickness of 20 cm each. Layer 9 has more compact earth in its upper portion. Layer 8 having a thickness of 30 cm is made of very compact clayey earth. Over this layer, STR 5, IA iii, a wall, has been built up and this structure marks the end of Period I A. Layers 7, 6 and 5, having a total thickness of 80 cm, have loose-earth and ash. Layer 6 has a maximum deposit of ash in comparison to 5 and 7. Over layer 5 is raised STR 12, IB i, portion of a wall. Layer 4 is its contemporary deposit. This structure is sealed by layer (3) made of earth and loose-ash. This layer marks the end of Period I B. Above layer (3) is the massive residential southern rampart of Period I C having five to six courses of rubble. Layers No 2 and 1 are the contemporary deposits of this rampart, consisting of loose-earth and ashy material and having a total thickness of 80-90 cm.

9. Trench K1, Qd.3 and K2, Qd.2: In these trenches digging has been carried to a depth of 2 m. and a portion of residential rampart and the entire bastion has been exposed. Layer 4 consists of loose, ashen material having a thickness of 20 cm. Layer No. 2, 40 cm thick, is made of very loose-earth and rubble. Layer 3 and 2 are contemporary deposits of the bastion. Layer 1 seals the structure. The width of the rampart is 3.40 m. This trench marks the end of the habitation of I C and also the end of the structural activity at the mound on the eastern side.

(ii) Section across the Gateway complex, Rampart and the Habitation (North-South).

1. Trench A5, Qd.2; A4, Qd.2-3; A2, Qd.3: This is a section across the gateway complex, rampart and the habitation.

   In Trench B5, Qd.1 digging up to a depth of 4 m revealed that here also just above the natural soil the Harappans raised the ground by ramming 1.50 m of hard yellowish earth represented by layers 11, 10, 9, 8, 7 and 6 over which is a sloping out ramp of hard earth in layer 5. It is 0.60 m high. Over this layer is built 5, STR 10, 1A which consists of four courses of stones and mud bricks and is the entrance in the rampart of the citadel of subperiod I A. Layer 4 has ashen and loose material having a width of 50 cm and is a contemporary deposit. Layer 3, which is an ashy layer, seals this structure. Layer 2 is a very loose layer with considerable ash and potsherds. Over this layer 5, STR 9, IB i is built. It is an enclosure wall having five to six courses laid in mud mortar. Layer 1, which is fallen debris and washed

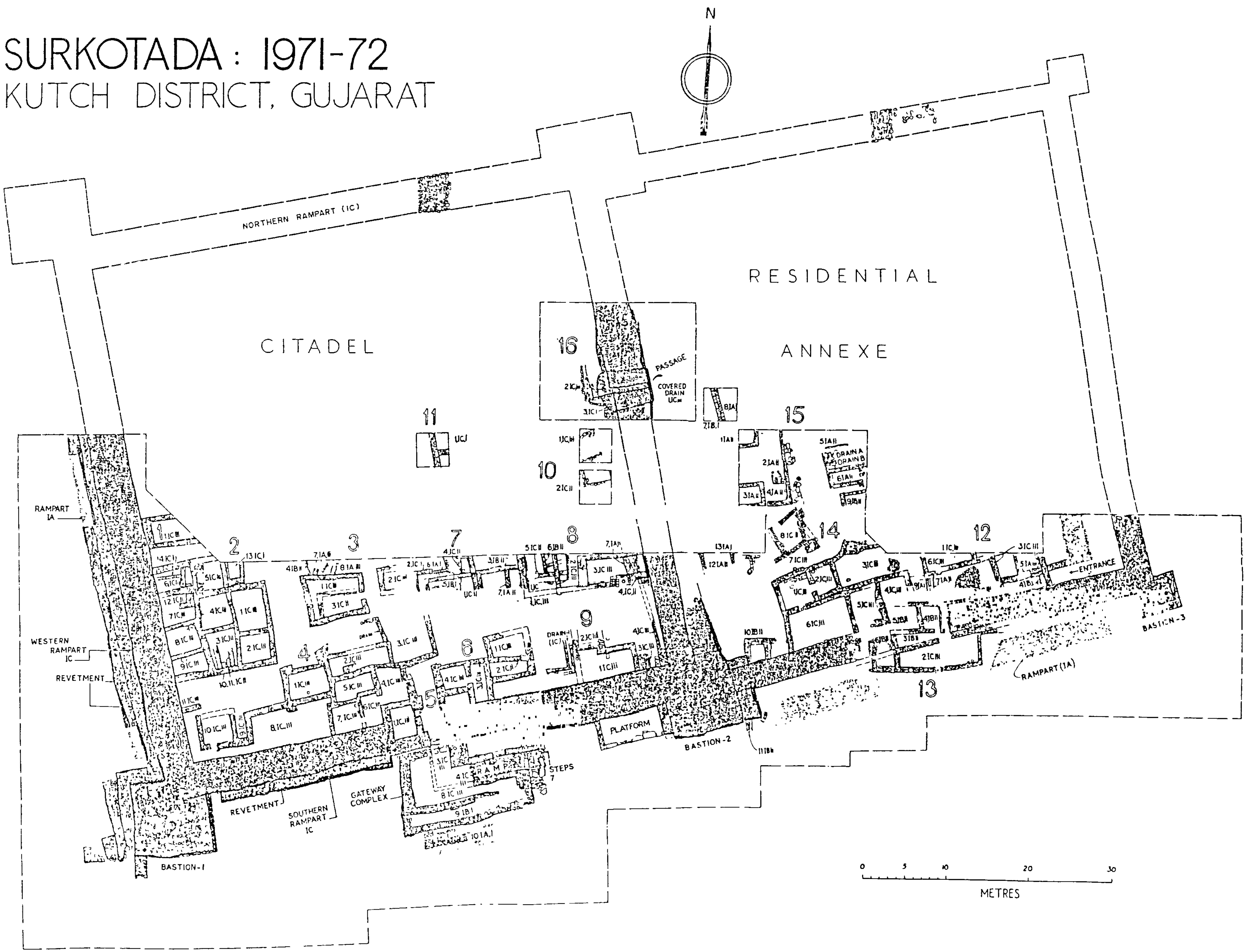
material, seals this structure. In Trench No. B4, Qd.2, 5, STR 8, IC iii has been found built over Layer 2. It is the parapet wall of the gateway complex. Digging has revealed that between STR 8, IC iii and entrance, steps including the portion of the ramp on this side were made by putting three courses of mud bricks over which an earth filling of 90 cm was put up. The entire complex was sealed by Layer 1. In B3, Qds.2 and 3, portion of the sides of the entrance having four courses of stones of the parapet wall and the side wall of the guardroom could be located. All these structures were found sealed by Layer 1. In Trench B2, Qd.2, STR 4, IC iii, a wall of three courses and again STR 4, IC iii, a wall having three courses, built on Layer 3 and sealed by 1 have been located. This section has given a complete picture of the gateway complex of the three successive sub-period and its elaboration in sub-period I C.

At this stage, please refer to the stratigraphy of Trench A1, Qd.3. The same stratigraphy is available in this section also; it is a section cutting A-B.

2. Trench ZA1, Qd.2: This trench is situated at the centre of the citadel area of the mound. Digging up to a depth of 8 m has revealed that here also the habitation of the Harappans started over a hard, yellowish earth platform raised to a height of 60 cm over which 11, STR 2, IA i was built. It consisted of two courses of mud bricks (10x20x40 cm) running east-west. The height of the rammed raised ground at this place was only 60 cm because of the undulating surface. It may be mentioned here that the height of the rammed material has been labelled as Layer 21, which is 60 cm thick. It appears that at a very early stage this structure came into disuse and the ground was further raised by ramming earth to a height of 1.25 m. Layer 20 and 19 represent this further addition. These layers consist of hard, yellow earth and represent the earliest structural activity in this trench. Layer 17 is a local layer consisting of loose-earth and sand and is 30 cm thick. Layer 16 is a universal layer of earth with hard clayey patches having a thickness of 30 cm. Layer 15 is again a hard, yellowish clayey layer of 30 cm thickness. Layer 14 is composed of loose-earth and sand and has a thickness of 20 cm. Layers 15B, 15A, and 15 have loose-earth, sand and ashy streaks. Total average thickness of these layers is 40 cm. Between 13 and 12 there is a local clayey patch representing a floor having a thickness of 10 cm. Layers 12 and 11 are loose layers composed of earth, ash and charcoal. Total thickness of these layers is 40 cm. Layer 11 marks the end of period I A. Layer 10 is composed of compact earth and potsherds. It has a thickness of 40 cm. Layer 9 is a loose-earth deposit and is 12 cm in thickness. Layer 8 is a loose-earth filling with considerable potsherds. It has a thickness of 35 cm. Layer 7 is a layer having brownish earth. Thickness is 25cm. Layer 6 is a layer having loose-earth, charcoal and ash and is 30 cm thick. This marks the end of Period I B. However, considerable pottery of I B is also available in Layer 5 just above, which has a thickness of 28 cm. It is composed of brownish and greenish earth which is not very compact. Above this Layer 5 rests a floor level of 10 cm thickness. Layer 4 consists of loose-ashen earth having a thickness of 40 cm. Layer 3 is again a very

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4. Structures of House Complexes.
   Group 15. STR- 1,IA,ii; 2,IA,ii; 3,IA,ii; 4, IA,ii; 5,IA,ii; 6,IA,ii; 7,IA,i; and 8.IA,ii.
   Group 12. STR- 7, IA, iii; 9, IA, i; 5, IA, iii.
   Group 14. STR- 12, IA, iii; 13, IA, i.

2. PERIOD I B

A. Citadel

1. Western Rampart (Not traceable).
2. Southern Rampart.
3. Eastern Rampart.
4. The Ramp.
5. The Entrance.
6. Structures of House Complexes.
   Group 3. STR - 4, IB, ii.
   Group 7. STR - 3, IB, ii; 5, IB, i.
   Group 8. STR - 6, IB, ii.
   Group 5. STR - 9, IB, i.

B. Residential Annexe

1. Southern Rampart (not traceable).
2. Eastern Rampart (not traceable).
3. Southern Rampart (not traceable).
4. The Entrance.
5. Structures of House Complexes.
   Group 15. STR - 9,IB, ii.
   Group 14. STR - 9,IB,ii; 10,IB,ii; 11,IB,ii.
   Group 13. STR - 3,IB,ii; 4,IB,ii; 5,IB,ii; 6,IB,ii.
   Group 12. STR - 4,IB,i.

3. PERIOD I C

A. Citadel

1. Western Rampart.
2. Southern Rampart.
3. Eastern Rampart.
4. The Entrance.
5. Structures of House Complexes.
   Group 1. STR - 1,IC,iii.

Group 2. STR - 1,IC,iii; 2,IC,iii; 3,IC,iii; 4,IC,iii; 5,IC,iii; 6,IC,iii; 7,IC,iii; 8,IC,iii; 9,IC,iii; 10,IC,iii; 11,IC,iii; 12,IC,iii; 13,IC,iii; 14,IC,iii.

Group 3. STR - 1,IC,iii; 2,IC,iii; 3,IC,ii.

Group 4. STR - 1,IC,iii; 2,IC,iii; 3,IC,iii; 4,IC,iii; 5,IC,iii; 6,IC,iii; 7,IC,iii; 8,IC,iii; 9,IC,iii; 10,IC,iii; 11,IC,iii.

Group 5. STR - 1,IC,iii; 2,IC,iii; 3,IC,iii; 4,IC,iii; 5,IC,iii; 6,IC,iii; 7,IC,iii; 8,IC,iii.

Group 6. STR - 1,IC,iii; 2,IC,iii; 3,IC,iii; 4,IC,iii.

Group 7. STR - 1,IC,iii; 2,IC,iii; 4,IC,iii.

Group 8. STR - 1,IC,iii; 2,IC,iii; 3,IC,iii; 4,IC,iii; 5,IC,ii.

Group 9. STR - 1,IC,iii; 2,IC,iii; 3,IC,iii; 4,IC,iii.

Group 10. STR - 1,IC,iii; 2,IC,iii.

Group 11. STR - 1,IC,iii.

B. *Residential Annexe*

Group 12. STR - 1,IC,iii; 2,IC,iii; 3,IC,iii.

Group 13. STR - I,IC,iii; 2,IC,iii.

Group 14. STR - 1,IC,iii; 2,IC,iii; 3,IC,iii; 4,IC,iii; 5,IC,iii; 6,IC,iii; 7,IC,iii; 8,IC,ii.

Group 16. STR - 1,IC,iii; 2,IC,i.

B. STRUCTURES

The foregoing account of the stratification brings out clearly the relative position of the occupational activity at Surkotada and accordingly the various structures[1] found in different levels now need a periodwise, detailed description to bring out their architectural and other features clearly.

A. PERIOD I A

(a) Settlement pattern

The excavation at Surkotada has revealed that right from the beginning of their

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[1] A large number of structures have been found at Surkotada in different subperiods and hence a twofold method of description of structures has been followed, i.e. (i) The prominent structures such as Rampart, Gateway complex, Bastions and revetments etc. are described and are also similarly marked on the plan, (ii) the other strutures or structural complexes of different periods located in a particular area, irrespective of the fact whether partially or completely exposed, have been broadly classified groupwise, designated and marked in double-line capital numericals. Individual structures and their respective periods occurring therein are shown in thick set smaller numericals, whereas phases are shown in Roman numericals.

Legend :

! Group of Structures - 3.
! Individual structures- 4.
3, 4, IC, iii = !
! Period - - IC.
! Phase. - iii.

6. *Structures of House complexes*

At the outset, is must be noted that no complete house plan is available due to restricted area of excavations in the levels of period I A. However, the available structures forming part of the houses are described below:

i) Group 3, STR 7, 1A, iii & STR 8, 1A, iii.

STR 7, 1A, iii and STR 8, 1A, iii lie in Trench XA1 (Qd.4). These are the two side walls of a lane which has a width of 1.50m. These structures are built on Layer 17 and sealed by Layer 13. Layers 16, 15 and 14 are the successive contemporary deposits in the lane [Pl.XIV]. STR 7, 1A, iii has six courses of dressed-stones laid in mud dmortar. Its available length is 85 cm and width is 50 cm. This structure is partially exposed. STR 8, 1A, iii, has five courses of dressed-stones laid in mud mortar. Its available length is 1.50 m and width is 65 cm. It is also partially exposed. In between these two structures, an accumulation of hard earth has been found due to its constant use by the pedestrians.

ii) Group 7, STR 6, 1A, i.

It is situated in Trench A1 (Qd.3). This structure, probably the portion of a mud brick wall, is built over natural soil. Its exposed length is 1.75 m and width is 35 cm. It came into disuse at a very early stage because over it is piled rammed yellow-earth which is about 90 cm thick. However, this is the earliest indication of any structural activity in this area.

iii) Group 7, STR 7, 1A, ii.

This structure is situated in Trench B1 (Qd.3) and is built on Layer 20. It is a wall running north-south in an oblique fashion and has two courses of rubble. Its length is 2 m and is projecting just out of the section and could be traced up to a length of 40 cm. The structure is sealed by Layer 18.

iv) Group 11, STR 3, IA, i.

It lies in Trench ZA1 (Qd.2) just above the natural soil where the ground has been raised up to a height of 60 cm. This structure is made of mud bricks of two courses running obliquely north-south. The structure has been exposed to a length of 1.70 m and has a width of 80 cm. The exact nature of this structure could not be determined. However, one thing is certain, i.e., it came into disuse at a very early stage.

(c) Residential Annexe

Here also, the exact dimension could not be attested to as only the southern side and a portion of the eastern side could be excavated. The available east-west width is 46 m. The analogy of the upper structures, however, suggests that it may also possibly have been roughly squarish in shape.

1. *Southern Rampart*

This rampart has been exposed mostly in a disturbed condition. On plan it has a width of 3.60 to 4 m in Trenches G3 (Qds.1 & 2), H2 (Qd.3), H3 (Qds.1 & 2), J2, (Qds. 2,3 & 4), J3 (Qds. 1 & 2) and K2(Qds. 1 & 4) and is made of mud bricks (10x20x40 cms).

2. *Eastern Rampart* [Pl. XV]

In southeastern corner, the eastern rampart has been exposed to a length of 6.70 m in Trench J1 (Qds. 2 & 3). A section across the rampart showed that the rampart was built over a raised ground of 70 cm with the rubble and mud brick foundation and at present rising to a height of 2m it has nineteen courses of mud bricks laid in mud mortar. The brick size is 10 x 20 x 40 cms. Another feature which came to light is the batter available in the rampart; at the base it is 4 m wide and the extant top is 3.60 m. The angle of the batter is 12°.

3. *Entrance* [Pl. XVI]

An entrance of very humble pretentions could be noticed at the southeastern corner of the rampart in Trench J1(Qd.3). Only one arm of this entrance could be traced. At this stage, the Harappan rampart suddenly stops and there is a gap. The outer side could not be exposed. The positive gap suggests an entrance. Outside the entrance, a slow rising ramp of rammed earth and mud bricks and brick lumps, rising to a maximum height of 80 cm, was built and on the inner side it slowly tapers down (max. height was 50 cm) to reach the residential area.

Due to the presence of structures on the top, bastions, if any, could not be traced. However, their existence cannot be ruled out in view the analogy at other Harappan sites and the bastions of Period I C which are available at this site.

4. *Structures of House Complexes* [Pl. XVII]

15 STR IA, ii complex lies 3 m B.S. in Trench ZF1 (Qds.1-4) and this gives a good glimpse of the Harappan architecture here. This complex, in short, consists of a lane with a width of 4.20 m flanked by houses on both the sides and a soakage jar embedded in the lane and a covered drain built in two phases. The later was probably connected to the soakage jar. The western side of the complex, i.e., STR 1, IA ii; 2, IA, ii; 3, IA ii having walls 50 cm in width seem to be rooms, out of which 1 and 2 are partially exposed but the area of the rooms could be reconstructed. However, Room No. 4, IA, ii has an inner area of 2.20 x 2.70 m with an entrance of 90 cm and seems to be a bath room with a soakage jar in a pit outside connected to a safe enclosure for checking the overflow of water into the lane. STR 2, IA, ii, seems to be an open area, probably a courtyard, enclosed by a wall of two to three courses of rubble running west-south to a length of 5.75 m. This enclosed area in the eastern side is flanked by a rubble platform of two courses in a dilapidated condition. It measures approximately 2.50 m in width. As had been already pointed out earlier, the outer side of the lane has a room numbered as 6, IA, ii and measures 1.30 m x 3 m.and is made up of two courses of rubble and mud bricks. This room probably belongs to an unexposed complex.

i) Drain [Pl. XVIII]

Numbered as A and B (IA) in the plan. Here the digging has revealed two drains covered by flat slabs and running in the west-east direction. The lower drain is built at a depth of 3.34 m B.S. over a local Layer 10, and is sealed by Layer 7. The drain mouth, oblong in shape, measures 14 cm x 28 cm. This drain has been made by putting three

courses of dressed stones on the sides. However, on the right side, mud bricks, stones and rammed earth have also been used. The drain is covered by stoneslabs. The inside material yielded greenish-earth and charcoal, evidently a refuse deposit. Just above, on the left side of this drain, another drain has been made with four courses of dressed stones and mud bricks running in a slightly oblique fashion and covered by slabs. The mouth of the drain measures 28 cm x 16 cm. This drain is sealed by Layer 6. The upper drain belongs to Period I A (ii) structural phase and is connected with the house complex described above. The lower drain belongs to an earlier constructional phase, i.e., I A, i.

ii) Group 15, 5, IA, ii.

It is a wall running eastwest to the north of the double drain. This wall is made of a single course of rubble embedded in very hard yellow clay. The length of the wall is 20 cm. This wall does not give any idea regarding its exact nature.

iii) Group 15, 7, IA, ii.

This is a structure situated in the Trench ZE2 (Qd.4) at a depth of 2.60 m. B.S. and is built on Layer 4 and sealed by 2A. It is a wall having north-south orientation; its available length is 4 m, and the width is 45 cm. It is having two courses of rubble and dressed stones set in mud mortar.

iv) Group 15, 8, IA, ii.

Again, this structure is also available in ZE2 (Qd.2) at a depth of 3.50 m, B.S. It is built on Layer 8 and sealed by 6. This structure has a north-south orientation with three courses of stones having a width of 50 cm and the available length is 3.75 m.

v) Group 12, STR 7, IA, iii.

This structure is available in Trench G1 (Qd.3) at a depth of 2.20 m, B.S. It is a wall running north-south and has a width of 80 cm in a stepped fashion. It is having six courses of rubbles and is exposed to a length of 1 m. This wall has two parts. The upper portion is very much disturbed and damaged.

vi) Group 12, STR 9, IA, i.

This structure lies at a depth of 4.22 m B.S. and is built over Layer 17 in trench G1 (Qd.3). It is a wall running north-south having two courses of dressed stones. It has an available width of 50 cm. Layer 15 seals this structure.

vii) Group 12, 5, IA iii.

This structure is situated in H1 (Qd.3), J1 (Qds. 3 & 4) at a depth of 3 m B.S. It is a stone wall running east-west and has a thickness of 70 cm and runs to a length of 9.20 m with only one course of stones. A damaged wall (partition wall) joining this suggests that these structures belong to a house complex.

B. PERIOD I B

(a) Settlement Pattern

During this subperiod there does not seem to be any marked change in the settle-

ment pattern. As a matter of fact, the same areas in the citadel and residential annexe were used as such.

(b) Citadel

The ramparts of the citadel remained the same as in Period I A except for the addition of a mud brick revetment in the eastern rampart of the citadel on the inner side. This might have been necessiated due to the extensive damage on the outer side. This evidence could be recorded in Trench D. (Qd. 4) wherein just above the revetment of Period I A, a one metre wide revetment having eight courses of mud bricks is available. The total basal width of the rampart at this stage becomes 6 m and thus a decrease of 1 m is noticed. The very fact that the revetment was made shows that the people of I B used the rampart of Period I A and did not construct a separate citadel over the earlier one.

1. *Ramp*

Due to the rise of the ground outside the citadel on the eastern side towards the residential annexe by constant use and habitational activity, a ramp is available in the Trench E1 (Qd. 4), represented by the compact clayey, yellowish, hard earth deposit on top of Layer (3), to climb up during Period I B. This ramp was raised on the vestiges of the earlier ramp of Period I A. The ramp was greatly damaged at the end of Period I B.

2. *Entrance*

It appears that in Period I B there was some renovation or addition to the Gateway complex. The exact nature and placement of the entrance in this Gateway complex is not discernible. However, 5, STR 9, I B, i in Trenches A4 (Qds. 3 &4), B4 (Qds. 3 & 4), a wall running east-west and turning north having six courses, is quite suggestive of the fact of a gateway complex. The length of the wall is 16.30m east-west and 8.80m north-south.

3. *Structures of House complexes*

i) Group 3, 4, IB, ii.

This wall is situated in XA1, Qd. 4 at a depth of 2.20 m B.S. running north-south with a length of 1.50 m and width of 40 cm. It has five courses of dressed stones. It is built on 8 and sealed by 5. Layers 6 and 7 are its contemporary deposits.

ii) Group 7, 3, IB, ii [Pl. XIX].

This is located at a depth of 2 m B.S. in Trench A1, Qd. 3; N1, Qds. 3 and 4. It is a long wall running east-west and is made of dressed stones. Its length is 11.60 m and width 50 cm. It has nine courses of stones. It is built on Layer 10 and sealed by 3 and partially by 4 in A1, Qd. 3 and Layer 6A in B1, Qd. 3 and 4. This wall is running east-west to a length of 11.60 m and turns at right angles to the south to a length of 1 m. Another 1.70 m long wall divides the east-west running wall into two halves and thus suggests that the structures belong to a house complex.

iii) Group 7, STR 5, IB, i.

This structure is situated at a depth of 3 m B.S. in Trench A1, Qd. 3. It is a mud brick wall running 1.50 m north-south and sharply turns west to a length of 1.75 m. It has only one course of bricks. It is built on Layer 11 and is sealed by Layer 10 and belongs to the earliest phase of Period I B.

iv) Group 8 STR 6, IB, ii.

It is located in Trench C1 (Qd. 4) at a depth of 2.60 m B.S. It has a wall running north-south to a length of 2.20 m and has only one course of dressed stones. It is 40 cm wide and has a length of 1.20 m. A partition wall running east to a length of 1.10 m joins it. It is 65 cm wide. It is built on Layer 9 and is sealed by Layer 8.

(c) Residential Annexe

1 *The Rampart*

There is no evidence to show that the rampart of the residential annexe was elaborated in Period I B. The same rampart of IA was used.

2 *Entrance*

However, the south-eastern entrance to the residential area was not used in Period I B. Instead, there was an entrance on the southern side in the Group 13 structure complex in Trench G2 (Qd. 3), H2 (Qd. 4). 13, IB, ii is a rectangular structure of two courses of stones measuring 9.05 m x 4 m. This enclosure has a side room towards west, 6, IB, II, measuring 2 m x 4 m. The walls have a width of 75 cm. This enclosed area has an entrance on the southern side, having a width of 1.50 m and a few pieces of flat slabs within the gap suggest the paving at the entrance. A similar gap is provided on the northern wall of the enclosure. Here, the gap for entry is 1.50 m.

3 *Structures of House complexes*

i) Group 13, STR, 4, IB, ii and 5, IB, ii.

These structures lie in Trenches G2 Qds. 1 and 3 and are found at a depth of 75 cm. B.S. and constitute two rooms. The room 4, I B, ii measures 2.50 m x 2 m and the exact measurement of room 5, I B, ii cannot be discerned due to the nonavailability of the side wall.

ii) Group 12, STR 4, IB, i.

This structure is located in Trench J1, Qd.4 and lies at a depth of 1.30 m B.S. It is a portion of a wall available to a length of 1 m having three courses. It does not give any idea of its exact nature. It is built on Layer 5 and is sealed by 3.

iii) Group 14, STR 9, IB, ii.

This structure is located in Trench E1, Qd. 2 at a depth of 2 m B.S. This is a wall of a house which is partially exposed. The available length of the wall is 2 m and it runs east to west in a slightly oblique fashion. It has five courses of dressed stones. The wall has a drain, the mouth of which is 10 cm wide. There is a row of big, flat stones lying

in alignment with the drain mouth at the base of the wall and in front there is a little gradient also. Perhaps, these might be paving stones to drain out the water [Pl. XX].

iv) Group 14, STR 10, IB, ii.

This is a structure which is partially superimposed by the rampart of period I C and looks to be a solitary room at present. The present available inner area of the rooms is 1.70 m x 2 m.

v) Group 14, STR, 11, IB, ii.

This is a solitary wall running north-south. It is 1.50 m long and 80 cm wide. Its four corses of stones are in a dilapidated condition.

vi) Group 15, STR, 9, IB, ii.

This structure lies in Trench F1, Qd. 3 at a depth of 90 cm B.S. It is a wall made of dressed stones built on hard, yellow clay foundations but has remains of one course only. This is a wall of the room which is partially exposed. The present available inner area of this room is 2.60 x 1 m. The great fire which occurred at the end of Period I B seems to be the cause of the destruction of this structure, as suggested by the stratigraphy of the area [Pl. XXI].

C. PERIOD I C.

(a) Settlement pattern [Pl. XXII, Fig. 9].

An elaborate picture of the settlement pattern at Surkotada is available from the levels of Period IC where extensive digging has brought to light a citadel area and a residential annexe. The entire citadel and the residential annexe is fortified with corner bastions and an intercommunicating passage in between. Besides, an elaborate gateway complex on the southern side of the citadel adds grandeur to the architectural achievement of the people of Period I C which is unparalleled in the present stage of our knowledge in any of the contemporary cultures in the Indo-Pakistan subcontinent.

(b) The Citadel

The inside area of the citadel measures 60 m x 60 m and thus has a square shape. The entire citadel complex gives an imposing impression of its characteristic features. The citadel at Surkotada gives a fair idea that it was built for defensive purposes.

1. *Western Rampart* [Pl. XXIII]

The western rampart running north-south has been found in Trenches XD1, Qds 1,2 & 3; YC1, Qds 1 and 4; XD1, Qds. 2 and 3; and XD3, Qds 1,2,3 & 4; XD4, Qds. 2 & 3. The total exposed length of the western rampart is 40 m. Its extant height (outside) is 4 to 4.50 m. This side of the rampart is built over the earlier mud brick rampart of Period IA. Between the two structures, there is of course, a gap of two layers which represents the deposit of Period I B. The western face of the rampart has thirteen to twenty courses of dressed and faced-stones laid in mud mortar. It is clear that originally and afterwards it was given two successive revetments of stones on the western face. The revetments are not available throughout the wall but wherever the wall was damaged,

or found to be weak or collapsed, the revetments were provided. During the lifetime of this rampart, the revetments were added twice on the outer side. The width of the first revetment is 1 m to 1.80m and the second has a width of 1 m thus widening the width of the rampart finally from 6.80 m to 7 m on this side.

2. *Southern Rampart*

The rampart of the southern side of the citadel is available in Trenches XB3, Qds. 3 and 4; XB4, Qds. 1 and 2; XA3, Qds. 3 and 4; B3, Qds. 1 to 4; C3, Qds. 1 to 4; D3, Qds. 1; D2, Qd. 4; Qds. 1 to 2; 3, XA4, Qds. 3 and 4; B3, Qds. 1 to 4; C3, Qds. 1 to 4; D3, Qd. 1; D2, Qd. 4. This included the centrally placed gateway complex also. In this area the maximum depth of the dig is 3.50 m. Here also, it was found that the rampart is built over the deposit of Period I B. The exposed length of the southern rampart on the outer face is 56 m. It has an extant height of 3.50 m and has seventeen courses of dressed stones laid in mud mortar. The exposed face of the rampart suggests that during its lifetime it was also damaged and revetments were provided both on the southwestern and southeastern sides. The revetment on the southwestern side to the west of the centrally placed gateway complex is 1 m wide and has twelve courses of stone masonry. The total width of the rampart here became 5 m. There is a gap of 1.05 m between the bastion and the revetment in the southwestern corner and there is a gap of 1 m between the gateway complex and the revetment in the central area. In the southeastern corner a platform measuring 3.50 x 7.80 m has been found at the corner where the rampart joins with the bastion. This platform has three courses of very heavy stones and seems to be a late contemporary structure to the rampart. The platform is situated at a distance 6.50 m from the centrally placed gateway complex.

3. *Eastern Rampart*

This a rampart which divides the citadel from the residential annexe and is available in Trenches ZC3, Qd. 3; ZD3, Qd. 4; ZC2, Qds. 2 and 3; and ZD2, Qds. 1 and 4; D1, Qds. 3 and 4; D2, Qds. 1, 2 and 3. It runs from north to south. A special feature of this rampart is the intercommunicating passage cut through it. Most of the exposed rampart is available in D1, Qds. 3 and 4 and D2, Qds. 1, 2 and 3. Only a portion of the rampart is exposed on both sides of the passage in Trench ZC3, Qd. 3; ZD2, Qd. 4. The total available length of the rampart in both the areas taken together is 28 m (14 + 14). It has nine to twelve courses respectively of dressed stones and rubble in both the exposed areas. The average width of the rampart is 4 m to 4.50 m. On the southeastern side considerable damage occurred and evidence of repair and revetment is very well-preserved. It has been found that in this part when the eastern face of the rampart collapsed it was repaired with mud bricks and rubble, and finally, a facing was provided with mud bricks laid in ashen mortar. The size of the mud brick is 10 x 20 x 40 cm. Subsequently, when damage again occurred on the southeastern side a further massive revetment wall was provided running north-south in an oblique fashion having an average width of 3 m (major-axis 3.50m and minor-axis 2.50 m). It has seven to eight courses of dressed stones and the inner area was filled.

On both sides of the intercommunicating passage the rampart has been provided with a 50 cm wide revetment on the inner side.

4. *Northern Rampart*

To verify the existence of the northern rampart digging was done in ZA5, Qd. 3; ZA4, Qd. 2 and consequently the northern rampart has only been exposed partially. It runs eastwest to an exposed length of 4 m and has a width of 4 m. It has seven to nine courses of dressed stones. The upper portion of the rampart on this side is considerably damaged.

5. *Bastion*

In the present excavations two bastions of the citadel on the southwestern and southeastern corners have been exposed completely and are marked as Bastion No. 1 (southwestern) and Bastion No. 2 (southeastern).

(i) Bastion-1

Bastion 1 lies in Trenches XD4, Qds. 2,3 and 4 and XD5, Qds. 1 and 2 . On complete exposure, it was found that the bastion offsets from the rampart and was damaged and then repaired twice. The original bastion measured 9 x 9 m and later on the revetments were successively put on and the measurements rose up to 10.50 m x 10.50m. The southern side of the bastion shows evidence of subsidence of the basal strata as the stones were found to be sagging [Pl. XXIV]. This may be due to either loose strata below or due to damage by flooding of the nearby *nala*. A very important evidence available was that in the last phase of the constructional activity, at places the bastion was covered with burnt bricks (size 8 x 16 x 32 cm). In all, the bastion has nine courses of dressed-stones.

At the extreme southwestern corner of the revetted bastion, there is a projecting structure having one course of stones in an area of 3.40 x 1.60 m. The exact nature of the structure could not be determined. Similarly, another wall of two courses running northsouth is available at the base of bastion. These suggest that in Period I C there was some habitational activity outside the rampart. Does it show overpopulation or some other phenomena?

(ii) Bastion-2

It lies in Trench No. D2, Qd. 3; D2, Qd.4; D3, Qds. 1, 2 and 3; E3, Qd. 1-4 and offsets 4 m on the southern rampart in the southeastern side. Originally, the bastion measured 9 x 9 m. Later on it was revetted once in the western and then in the eastern sides. Finally the measurement of the bastion became 12.20 m x 9 m. The further revetment of the rampart, described earlier, offsets this bastion on the northern side.

6. *Gateway Complex* [Pl. XXV]

A centrally placed gateway complex to the citadel abutting the southern rampart was located in the Trenches A3, Qds. 1, 2, 3 and 4; B3, Qds. 2, 3 and 4; A4, Qds. 1, 2, 3 and 4; B4, Qds. 1, 2, 3 and 4; C3, Qd. 4; C4, Qds. 1 and 4. The gateway complex measures 10 m x 19 m. One thing is obvious that the gateway complex of Period I C is built over the gateway complex of I B of which 9, IB, i, was also used in the earlier stage of its life and later abandoned due to further embellishment. The gateway complex of Period I C consists of a projection of 8 x 16 m made in the parapet wall 5, 8, IC, iii,

emanating from the rampart and running north-south to a length of 7.50 m having more than ten courses and then turning east up-to a length of 12 m having six to seven exposed courses of dressed stones and rubble. The wall has a width of 1.30 m in the western side and 90 cm in the eastern side. The inside area is enclosed by the parapet wall which was raised to the height of 90 cm by putting mud bricks and a filling of earth. On the eastern side of the enclosed area described above, a flight of five ascending steps having a width of 1.70 m with a stone balustrade on its eastern side from the ground level was constructed. The flight of steps lead up and then the pathway turns with a step westward wherein a rubble paved ramp with thirteen courses of dressed stones and a balustrade, 4, IC, iii, has been built. It slowly ascends west and turns north to the main entrance. This ramp is paved to a distance of only 7 m and after that the area has only an earth filling over the mud bricks described earlier in the enclosed area pathway. It ascends slowly northwards to the main entrance built in the rampart having on the eastern side an offset measuring 1 x 2 m and on the western side flanked by another offset measuring 3 x 2.30 m. In between these two offsets, there is a flight of three steps built of huge flat slabs. The entrance has a width of 1.70 m. On the northern side of the ramp two rooms numbered 5 IC, iii (inner measurement 2 m x 6.30 m) and 6, IC, iii (inner measurement 1.70 m x 2.20 m). The outer wall of room 5, IC, iii, facing the ramp was damaged and repaired by putting up small rubble stones in mud. These two rooms seems to have been used probably as Inspection rooms or Check-post where the entrants were checked and could enter the main entrance of the citadel through the adjoining three flight-of-steps described earlier. Near the main entrance on the inner side of the entrance there are two small offsets of 1.80 m x 0.40 m on either side. This was the portion of the entrance where the main door might have been put up. On either side there are two guards rooms numbered as 1, IC, iii (3.50 m x 2.80 m.) and 2, IC, iii (3.50 m x 2.80 m) and opening to the entrance passage. These rooms have been made partially within the width of the rampart. The passage leading from the main entrance to the houses inside the citadel has a width of 2 m and a length of 10 m.

7. *The Intercommunicating Passage* [Pl. XXVI]

The intercommunicating passage (16, IC) between the residential annexe and the citadel could be located in Trenches ZC3, Qd. 3; ZD3, Qd. 4; ZC2, Qd. 2 and D2, Qds. 1 and 4. In this area, digging up to a depth of 2.20 m B.S. on the inner side and 2.70 m B.S. on the outer side revealed the existence of an intercommunicating passage in the rampart which was later on blocked and a drain in two phases was built [Pl. XXVII]. The outer face towards the residential annexe showed a cut clearly on both sides of the rampart suggesting the passage and later blockings. The width of the gap is 4 m towards the residential annexe. In this gap the lower four courses run in perfect alignment with the masonry of the rampart on both the sides. Over these, eight courses of dressed-stone masonry of the blocked passage are in evidence. In between this blocked passage there is a drain-opening measuring 40 X 40 cm and runs to a length of 4.50 m.

It appears that in the beginning there was a 5.30 m wide passage which was slowly constricted to 4 m towards the residential side. The passage is provided with a semicircular pedestal (16, 2, IC, i) on the citadel side in which two to four courses of wedge-shaped

stones are used. In the middle of the passage a 50 cm wide pavement slab was laid commencing from the slow descending ramp leading to the residential area. The evidence is very much disturbed. Later on in the second phase this passage was blocked up to the desired level by rubble masonry. The blocking might have been necesstiated because of the rise of habitational deposit in the citadel. At this stage a covered drain (length 4.50 m) 1, IC, ii, was provided taking advantage of the smooth, flat surface of the pathway for a drain as its base. In the third phase, when the level reached higher, the passage was filled up to the desired height on the northern side, a drain was provided over the earlier drain and the southern side was completely blocked. The passage now has a width of 2.30 m with a screen wall on the citadel side which has east-west length of 2.50 m and turning north-south 4 m (3, I C, iii).

8. *Structures of house complexes* [Pl. XXVIII]

i) Group 1, 1, IC, iii.

This structure is situated in Trench No. XC1, Qds.1 and 2 and consists of two walls of three courses of rubble running eastwest. Probably, it is a part of a room. The inside exposed area is 2.50 m x 4 m. The thickness of the walls is 60 cm.

ii) Group 2.

These structures lie in Trenches nos. XC1, Qds. 3 and 4; YB1, Qds. 3 and 4; XC 2, Qds. 2 and 3; XB2, Qds. 1, 2 and 3. In this group, structures with numbers 1, 2, 3, 4, 5, 6, 7, 8 and 9 make a complete house complex of I C, iii, while structures numbered as 10, 11, 12, belong to phase ii of IC and structures 13 and 14 belong to I C, i.

Group 2, 13, IC, i.

It is a partially exposed room having three walls with three to seven courses of dressed stones laid in mud mortar. The average thickness of the walls in 70 cm.

Group 2, 14, IC, i.

It is a wall having two courses running northsouth to a length of 2.20 m and having a width of 60 cm joined by another wall running eastwest to a length of 3 m and having a width of 35 cm.

Group 2, IC, 10.

It is a single course wall running northsouth to a length of 2.80 and has a width of 60 cm.

Group 2, I C, 11.

It is again a wall running parallel to north south 2, I C, 10 at a distance 1 m. It has two courses of stones and width of 60 cm.

Group 2, I C, iii.

This is a house complex with nine rooms—the biggest exposed so far in the citadel area. In general, it is located towards the westernside of the citadel and the rooms are abutting the main rampart. The house complex opens to the east and has a lane in front of it. Similarly, on the northern and southern sides there are no structures joining it. It

has an independent identity. Only three to four courses of dressed-stone masonry having an average width of 60 cm to 70 cm are available in the walls of the rooms. The back side rooms, i.e. 6,7, 8, and 9, yielded considerable number of pots and a flat copper-chisel. The measurements of the rooms are given below.

Group 2, 1, IC, iii: Size 4.30 x 3.60 m. (Front room with an entrance).

Group 2, 2, IC, iii: Size 3 x 3.40 m

Group 2, 3, IC, iii: Size 4.20 x 3 m.

Group 2, 4, IC, iii: Size 3.80 x 3.50 m.

Group 2, 5, IC, iii: Size 3.20 x 3 m.

Group 2, 6, IC, iii: Size 2.20 x 4.40 m.

Group 2, 7, IC, iii: Size 3.40 x 4 m.

Group 2, 8, IC, iii: Size 3 x 3.80 m.

Group 2, 9, IC, iii: Size 1.80 x 4 m.

iii) Group 3: This structural group lies in Trenches No. XA1, Qds. 3 and 4; XA2, Qds. 1 and 2; and A1, Qd. 4.

Group 3, 3, IC, ii: It is a two-course stone wall running east west to a length of 5 m and then turning south at right angles to a length of 3 m. It has an average width of 50 cm.

Group 3, 1, IC, iii: It is a complete room having a quadrilateral shape with dressed stone walls of four to six courses. It has an entrance on the eastern side facing the lane. The measurement of the room is 4 x 6 m. This structure, as it stands separately, has an individuality of its own.

Group 3, 2, IC, iii: On the other side of the lane it is a partially exposed wall of a room running northsouth and turning east at both the terminals. The length of the wall is 3 m. It has a width of 70 cm and has two courses of dressed stones.

iv) Group 4, IC, iii: This group of structures lies in Trenches No. XA2, Qds. 2, 3 and 4; A2, Qds. 2, 3 and 4; XC3, Qds. 2 and 3; XB3, Qds. 1, 2, 3, and 4; A3 Qd. 1; XB2, Qd. 3 and seems to belong probably to a house complex. The important feature of this complex is a rectangular shaped platform outside the house (size 2 x 1.40 m). A platform, inside a room 2, IC, iii. measuring 1.70 x 0.80 m is also in evidence. A small drain running north-south to a length 3m in the open area has been noticed here and also a rectangular hall (8, IC, iii). Three to four courses of stone masonry are available in all the structures. The door width in the rooms varies from 90 cm to 1 m. The thickness of the walls is 60 cm to 80 cm. The inner measurements of the rooms are as below:

Group 4, 1, IC, iii: Size 3 x 4.70 m.

Group 4, 2, IC, iii: Size 2 x 7.20 m.

Group 4, 3, IC, iii: Size 3.70 x 4.80 m.

Group 4, 4, IC, iii: Size 4 x 2.50 m.

Group 4, 5, IC, iii: Size 4.60 x 2.30 m.

Group 4, 6, IC, iii: Size 3.70 x 2 m.

Group 4, 7, IC, iii: Size 3.20 x 3.20 m.

Group 4, 8, IC, iii: Size 4.20 x 9.40m. (rectangular hall).

Group 4, 9, IC, iii: Size 1.10 x 3 m.

Group 4, 10. IC, iii: Size 3 x 3.30 m.

Group 4, 11, IC, iii: A solitary wall runs eastwest to a length of 2.40 m.

v) Group 5, IC, iii.

Gateway complex already described earlier.

vi) Group 6, IC, iii.

This group lies in Trenches A2, Qd. 3; B2, Qds. 3 and 4. It consists of three rooms and an earlier wall. The thickness of walls is 70 cm to 80 cm. These walls have three to four courses of stones laid in mud-mortar. The available structures are as below:

Group 6, 2, IC, ii: It is a wall running eastwest in a slightly oblique fashion. It is 3.80 in length and 60 cm in the width.

Group 6, 1, IC, iii: It is a room measuring 4.50 x 3.80 m.

Group 6, 3, IC, iii: It is a room measuring 4.50 x 1.50 m.

Group 6, 4, IC, iii: It is a room measuring 2.50 x 2.90 m.

vii) Group 7, IC, iii.

This group of structures lies in Trenches A1, Qds 3 and 4; B1, Qds. 3 and 4. In this area no complete structures making a complex could be discerned. The details are as below:

Group 7, 2, IC, i: It is a wall running northsouth in an oblique fashion to a length of 2.50 m and turns eastwards to a length of 1.80 m. It has four courses of stones laid in mud-mortar. It has an available width of 60 cm.

Group 7, 1, IC, ii: It is a wall running northsouth to a length of 4 m and has a width of 70 cm. It has four courses of stones.

Group 7, 4, IC, ii: It is a wall running northsouth to a length 2 m. and has an available width 40 cm and has two courses of stones.

viii) Group 8, IC.

This group of structures lies in Trenches C1, Qds. 3 and 4 and D1, Qd. 4.

Group 8, 4, IC, ii: It is a wall running east west and joins the rampart. It has a length of 4.90 m and an available width of 70 cm and has five courses of dressed stones. It is a solitary wall.

Group 8, 5, IC, ii: It is a structure consisting of one wall running north south to a length of 3 m and at a distance of 70 cm another wall which has a length of 3.70 m running east west joins it. The average width of the wall is 60 cm.

Group 8, 1, IC, iii and 2, I C, iii & 3 IC, iii: These three structures make three

rooms of a house complex partially exposed. The thickness of walls varies from 0.60 m to 1 m and have seven to eight courses of dressed stones laid in mud mortar. The details of the sizes of the rooms are given below:

Group 8, 1, IC, iii: Size 4.50 x 3.50 m

Group 8, 2, IC, iii: Size 4 x 2.40 m.

Group 8, 3, IC, iii: Size 2.80 x 7.00 m. (abutting the rampart).

ix) Group 9, IC, iii.

This group of structures lies in the southeastern corner of the citadel in Trench C2, Qds. 3 and 4; D2, Qds. 1 and 4 and is partially exposed and found to have two rooms and an adjacent drain.

Group 9, 1, IC, iii: It is room abutting the rampart. It has walls on three sides having a width of 60 to 70 cm with two to three courses of stones. The room measures 3.50 m x 6.50 m.

Group 9, i, IC, iii: It is a partially exposed room having only three walls. The width of the room seems to be 2.50 m. The thickness of the walls is 70 to 80 cm and has two to three courses of stones laid in mud mortar.

Group 9, 3, IC, iii: It is a thick wall having a width 1.30 m running southnorth to a length 1.80 m and emanates from the rampart. Only four courses of stones of this wall could be traced.

Group 9, 4, IC, iii: It is a wall running southnorth to a length of 6.50 m and has a width of 40 cm. It has three courses of stones. It runs parallel to the eastern rampart.

x) Group 10, IC, iii: This group of partially exposed structures lies in Trench XC1, Qds.2 and 3. These are, broadly speaking, remains of two rooms. One of the rooms has an area of 2.50 x 3 m. It has stone walls having two courses with a width of 60 cm.

xi) Group 11,1, IC, iii: This group of structures lies in ZA1, Qd.2. It is a wall of five courses of stone running north south to a length of 4 m and a width of 70 cm. It is joined by another 70 cm wide wall running eastwest to a length of 1.20 m. It has three courses of stones.

9. The Drain [Pl. XXIX]

It is a drain running northsouth (length 3.50 m) and then turning west (1.80 m). The drain has a width of 20 cm. The drain has two courses of stones in its side walls.

(c) Residential Annexe [Pl. XXX]

In period I C the dimensions of the Residential annexe are 60m x 55m with two bastions at the eastern and western corners.

1. *Southern Rampart*

Emanating from the south eastern bastion of the citadel, the southern rampart of the residential complex lies in E2, Qd.3; E3, Qd.3; F2, Qds.3 and 4; F3, Qd.2; G2, Qd.4;

G2, Qds. 1, 2 and 4; H2, Qds. 1 and 2; J1, Qds.3 and 4; J2, Qds.1 and 2; K1, Qd.4. It runs eastwest and has three to six courses of dressed stones and rubble. The rampart wall has a width of 3.40 m and runs up to a length of 18.60 m on the south western side and 24 m on the eastern side. The rampart is considerably damaged in the southwestern side. A revetment 65 cm wide has been put at places (STR 13, 2, IC, iii).

2. *Eastern Rampart*

The eastern rampart of the residential area lies in K1, Qds.1 and 4. It runs north south to an exposed length of 6.50 m having six courses of rubble and facing of dressed stones. At the junction of the eastern and southern ramparts the corner Bastion No.3 has been exposed.

3. *Northern Rampart*

The northern rampart of the residential area has been found in ZG5, Qds.1 and 2. It runs east west to a length of 8 m. Its width is 3.40 m with two to three courses and has been found very much damaged.

4. *Bastion No.3* [Pl. XXXI]

Bastion lies in K1, Qd.3 and K2, Qd.2. It has been built at the junction of the eastern and southern ramparts. The bastion is squarish in shape and has seven to eight courses of dressed stone masonry. It has been built in two tiers. The lower tier is 4.50 x 2.50 m and the upper tier is 3 x 3.20 m.

5. *Entrance*

The entrance lies in Trench H2, Qds.2 and 3; H2, Qds.1 and 4. It is a simple cut or gap, 1.70 m wide, in the southern rampart. Here the rampart is damaged very much. It appears that just near the entrance there was probably a guardroom, numbered STR 13, 1, IC, iii, measuring 2.50 x 2.20 m. This guardroom is made in the rampart itself. The symmetrical guardroom on the other side could not be traced, due to heavy damage but its possible existence can be surmised. It appears that during this period the enclosure, STR 12, 3 IC, iii, of Period I C was also in use.

6. *House complexes of the residential annexe* [Pl. XXXII]

Group 12, IC, iii: It is a partially exposed house complex available in Trenches G1, Qds.3 and 4; H1, Qds.3 and 4; J1, Qd.4.

Group 12, 1, IC, iii: It is a partially exposed room. The exposed size is 4 x 1.70m. The thickness of the walls is 60 cm. They have three courses of dressed-stone masonry.

Group 12, 2, IC, iii: It is a courtyard enclosed on three sides and open on the west. Size 4.50 x 8.00 m. It consists of a stone pavement in the middle. The walls having two courses have a width of 60 cm [Pl. XXXIII].

Group 12, 3, IC, iii: It is a room measuring 4.70 x 5 m having three courses of stones extant in the walls which are 70 cm. wide.

Group 14: Group 14 lies in Trenches F1, Qds.1, 2, 3 and 4; G1, Qds.1 and 4; F2, Qds.1 to 4 and G2, Qd.1. In this area a very good glimpse of house complex is available.

On both sides of the lane the houses have been constructed. The southern side of the lane gives a complete unit. One house comprised of five interconnected rooms (average width of the wall is 60 cm having three to four courses of stones); in the rear is a courtyard enclosed on three sides, used possibly as a cattle pen; in front of the lane or the street was a platform for sitting or selling goods.

Sizes of the rooms are given below:-

Group 14, 1, IC, iii: Size 3.50 x 3.50 m.

Group 14, 2, IC, iii: Size 2.90 x 2.50 m.

Group 14, 3, IC, iii: Size 3.50 x 8.00 m. Enclosed cattle pen with a pavement at one place and saddle quern on another side.

Group 14, 4, IC, iii: Size 5.00 x 3.00 m.

Group 14, 5, IC, iii: Size 4.00 x 3.00 m.

Group 14, 6, IC, iii: Size 4.20 x 7.30 m (A very big room in the backside).

Average width of the entrance is 0.90 m.

Irregular platform, maximum size 1.30 x 3.20 m.

Group 14, 7, IC, iii: This structure is a small stone wall of two courses running north south to a length of 2.50 m. It has a width of 60 cm.

Group 1, 7, IC, iii: It is a partially exposed room of a house complex having a platform measuring 1.50 x 1.70 m abutting in the lane. The size of the room is 3 x 3.20 m. Thickness of the walls is 60 cm having two courses of stones. The lane in between the houses runs east west bypassing the platform of the houses on both sides and has a width of 1.50 m. On the outer side of STR 1, IC, iii, a pot is also embedded in the lane. An interesting feature of the house complex is the availability of a pot in one of the rooms, STR 1, IC, iii, and a small platform of two stones by its side, probably for keeping the small pot to take out water from the bigger pots as is the present practice [Pl. XXXIV].

6. CHRONOLOGY

At Surkotada the entire habitational deposit is divided into three subperiods, i.e., I A, I B and I C based mostly on ceramic evidence. The only common factor in the pottery of all the subperiods is the Harappan red ware which, statistically speaking, decreases in percentage in the later two subperiods but still remains an important ceramic tradition throughout, along with typical Harappan antiquities. Another remarkable feature which has been noticed is that in all the subperiods, some other ceramic traditions occur which may be a pointer to different ethnic or cultural groups living with the Harappans in complete coexistence. A study of this different pottery in the Harappan assemblage is of considerable significance. Besides, a large number of crudely shaped bone tools, some of which were probably used for agriculture and were hitherto unknown as such, also constitute an important aspect. Having all these features in various subperiods that show a cultural continuity, a phenomenon of permanent settlement, besides the inherent growth and development[1] along with the assimilation of new ideas and people which has given a dynamism to the culture-development, the habitational period could now be bracketed between 2300 B.C. and 1700 B.C. as per the absolute chronology offered by C-14 determinations. Of course, it is also equally valuable in the broad assessment of the entire culture-complex of this site.

Before a detailed discussion on the chronology of the various subperiods is attempted, it will be worthwhile to sum up the chronology of the Harappan culture as it stands today.

It was Mortimer Wheeler in 1947 who, while basing his comparative study on the West Asian archaeological finds and more particularly on those of Sumer and Akkad, prescribed a time bracket of 2500 B.C. to 1500 B.C. for Harappan culture with a strong focus on the Sargonid Period which is now closely dated to 2370 B.C. to 2284 B.C.[2] Agarwal in 1964, emboldened by the C-14 determinations from some Harappan sites and strongly refuting the relative archaeological chronology of Harappan culture provided by Wheeler, Mode and Langdon, proposed a shorter date bracket of 2300 B.C. to 1750 B.C. for the metropolitan centres and 2200 B.C. to 1700 B.C. for the peripheral sites. Now mostly, the shorter chronology proposed by Agrawal[3] is being accepted. Allchin has suggested, "There is a surprising conformity in these dates. They suggest a period of not more than four centuries for the Harappan civilization between 2150 B.C. and 1750 B.C. We are inclined to accept these with provision that unknown variables may be found which

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[1] Allchin has rightly pointed out, "At almost every site of Harappan period there is at least some evidence of internal development" Bridget and F Raymomd Allchin, *The Birth of Indian Civilization*, (Suffock, 1969), p 142. Gregory L Possehl "The Mohenjo-daro Floods: a reply", *American Anthropologist*, Vol 69 (Feb 1967), no 1, pp 33-34.

[2] R E M Wheeler, 'Harappa 1946: The Defences and Cemetery R 37', *Ancient India*, No 3 (Delhi 1947), pp 78-83; R E M Wheeler, *The Indus Civilization*, 3rd edition, (Cambridge, 1968)

[3] D P Agarwal, *The Copper Bronze Age in India*, (Delhi, 1971), pp 71-78

demand some general modifications".[1] However, recently, Mandal opined that 'on the basis of emergent indications it may tentatively be dated to range from *circa* 2500 B.C. to 1700 B.C. with every possibility that it may go still earlier'. This is for the Central Harappa culture according to him.[2]

Keeping in view this background, the chronology of Harappan culture and the general traits available at Surkotada, we have to consider the chronology of this site both on relative evidence and absolute dating which will provide a chronological perspective to this peripheral outpost of the Harappan culture. A periodwise consideration of the entire evidence is given below:

PERIOD I A

In this period Harappan red ware is 93%. Most of the Harappan forms excepting the pointed bottom goblet which, however, are known to have come only from the middle levels upwards at Harappa, are available. The typical Harappan red ware shapes are comparable to Mohenjo-daro, Chanhudaro, Harappa, Lothal, Rangpur I A, Kalibangan (Harappan), Amri III a, b, c and Mundigak III and Kot Diji. The design repertoire is also comparable to these sites. Geometric and vegetal designs are also similar to classical Harappan, while landscape scenes are also available.

In the red ware which is included in our descriptive catalogue of pottery under Harappan red ware, some forms have similarities with pre-Harappan Kot Diji, Kalibangan and Amri, e.g. (1) Low-necked jars with a broad band at the neck in black on tan slip, (2) Basins with or without any cord impression, (3) Bowls, (4) Jars, (5) Bowls-on-stand, (6) Squat dish-on-stand, (7) Flat dish-on-stand with cylindrical stem, and (8) Storage jars. The exact comparison of the various forms with sites are given in the footnotes under the chapter, 'Pottery'.

The aforesaid comparative material certainly shows a pre-Harappan affiliation in forms.

A polytone Cream slipped over red ware has low-necked jars, medium-sized convex bowls and a few bowls on cylindrical stands. Mostly, designs are geometrical excepting for a bird or a fish. Though, cream slipped red ware is available from Amri, Bampur, Siah II levels of Kalat, Sahri Sokhta and Southern Turkamenia, Surkotada does not offer exact comparable material. However, similarities of a general nature are indicated. It shows a local adaptation of a widespread ceramic tradition in the third and early second millennium B.C. in the areas of Eastern Iran, Baluchistan and Sind.

The polychrome Red ware, wherein, besides, black or brown, white colour has also been used in paintings, consists of low-necked round bodied jars in varying sizes and few bowls. The design repertoire has geometric patterns and wavy lines, etc. This ware is broadly comparable with such pre-Harappan wares, e.g., Kechibeg white on dark reddish

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[1] Allchins, *op cit*., 1969, p.140.

[2] D. Mandal, *Radio Carbon Dates and Indian Archaeology*, (Allahabad, 1972), pp 57 and 77

slip, the variant one, the Jangal polychrome, and Fabric A of the pre-Harappan Kalibangan and Saraikhola Period II. This ware has a superficial resemblance but divergences are many more, again indicating a local adaptation of a widespread pre-Harappan tradition.

The Reserved Slip ware found at Surkotada is represented by many more fragments and also has some forms which have so far not been reported from elsewhere, e.g., hole-mouthed 'oil bottles', concave necked jars with a rounded body and a shallow basin. Reserved Slip ware is reported from a large number of sites in Kutch, Desalpar, Lothal A (Phase IIB), pre-Prabhas deposits of Somnath, Sargoind levels of Brak in the Khabur valley, at T.Jidle, Akkad and Nineveh. This is the evidence at Surkotada which gives an horizon of the Sargonid levels, i.e., 2,370-2,284 B.C. This relative evidence is of considerable significance for the period IA levels of Surkotada besides suggesting extraterritorial affinities and contacts.

The deep burnt-Amber slipped red ware with a waxy feel has so far not been reported from other sites and hence does not offer a clue to derive any comparison at present.

A study of the ceramic contents of Period I A shows that the Harappan culture of the matured type was associated with certain pottery traditions of earlier vintage which constitute broadly a widespread basal tradition prevailing in third mellennium B.C., which scholars like Mughal will like to call 'Early Harappan' phenomenon, in the whole of north western area. Allchin has rightly pointed out, "As it is known at present, the painted pottery of the pre-Harappan settlements of the Indus plains show a range of common elements and a number of distinguishing features"[1] and it applies to Surkotada in Kutch also. So far as the antiquities of period I A are concerned they are typical Harappan and include seals, some sherds painted with pictographic script, terracotta cakes, painted and unpainted bangles, wheels, cartframes, slingstones, saddle querns, copper bangles, rings and spearheads, long ribbon blades of chert, lapis-lazuli, carnelian, faience and terracotta beads. Saw-edged blades and sickle-type blades reported from Amri, Siah damb and Surab in Kalat are available at Surkotada in Period I A and have a very early date. Similarly, tanged blades and shouldered blades are also of an early horizon. However, Mughul has pointed out that the 'stone blades of early Harappan periods are marked by serratted edges'. These are the earlier traits in the Harappan assemblage. Besides this, there is a complete absence of bulls and Mother Goddesses so well known in the Indus culture Mother goddesses are also absent at Kalibangan and Lothal.

A large number of crudely made bone tools, e.g., scrapers, piercers and points, mostly from split shafts, show an earlier bone tool tradition which is found in this period at Surkotada. Some such bone tools are available at sites with an earlier date, e.g. Sahr-i-Sokhta, Damb-Sadaat I, II, III, Kili Ghul Mohammed I-IV, Anjira and Siah damb in Kalat and lastly at Periano Ghundai. This aspect is worthwhile to be pointed out as an earlier trait in the culture complex.

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[1] Allchins, *op cit.*, 1969, p 300

Even the tradition of pot burials with charred bones kept in pots has earlier parallels.[1] A pot in burial no.2 with horizontally drawn grooves has a Kot-Dijian affinity. In the field of architecture the raising of ground level, the building of fortification around the citadel and the residential annexe, bath rooms and drains, streets (partially exposed at Surkotada), use of standard size of bricks (Ratio 1: 2: 4) is a matured Harappan tradition. The feature of fortification is available at Harappa, Kalibangan, Alimurad, Sutkagendor, Sotka Khoh, Desalpar and Lothal. However, the tradition of use of stone-and-mud bricks and lumps in construction has an 'Early Indus' tradition. The rampart of Period I A bears testimony to this. Taking the entire relative evidence in account one cannot but feel that the material remains of Period I A indicate an early 'Indus Horizon' of the 3rd and early 2nd millennium B.C.

Now, let us examine the absolute dates provided by C-14 determinations.

There are four C-14 dates for Period I A.

PRL-85, Chalcolithic culture, — (4365±135)—1950 = 2315 B.C.

This is a charcoal sample from the mid-levels of Period I A at a depth of 4.8m B.S from layers 13-14 in Trench ZF1, Qd.2 which is located in the habitational area of the citadel.

TF 1305, Chalcolithic culture, 3890 ± 95 (4005 ± 100) — 1950 = 2055 B.C.

This is a charcoal sample collected from the earliest level of Period I A just above the raised grounc at a depth of 7.25 m B.S. from Layer 19 in Trench ZA1, Qd.2 which is situated in the middle of the citadel area.

TF 1310, Chalcolithic culture, 2810 ± 95 (3920 ± 100) — 1950 = 1970 B.C.

This is a charcoal sample from the latest level of Period I A at a depth of 4.6 m B.S. from Layer 11 in Trench ZA1, Qd.2 situated in the middle of the citadel area

TF 1304 & 1309, Chalcolithic culture, 3645 ± 90 (3755 ± 90) — 1950 = 1805 B.C.

It is a charcoal sample from 6.6 to 7.15 m B.S. from Layers 18A and 20 from Trench ZA1, Qd.2.

Since the sample is a mixed one and collected from the layers falling in between the location from where samples TF 1305 and 1310 were collected and gives a later date, it is not taken into consideration due to its inconsistency.

As per the C-14 dating the period I A of Surkotada is to be dated between 2055 B.C. (if not 2315 B.C.) to 1970 B.C. or 1940 B.C. (TF 1295), if we take the earliest date of Period I B discussed later. Period I A in the citadel area is represented by a deposit of 4.40 m and only 85 years are assigned to it which is too short a span for such a deposit. These dates are in conformity with more or less similar dates from Mohenjodaro, Kot Diji, Lothal, Kalibangan and do indicate the earlier to mature phases of Harappan culture. Of course, the absolute dating has to be taken with caution for Period I A and we cannot

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[1] Post cremation urn burials are met with at Periano Ghundai (*Circa* 2500 B.C.), Mehi (*Circa* 2000 B.C.), Shahi Tump (*Circa* 1800 B.C.) and Sutkagendor (*Circa* 2200-1900 B.C.). S.P. Gupta *Disposal of the Dead and Physical Types*, (Delhi, 1972), pp 33-35. M. Rafique Moghul *Present state of Research on the Indus valley Civilization*, (Karachi-1973), pp 7-15

ignore the mingling of the pre-Harappan elements and the availability of Reserved Slip ware, dated to 2370 - 2284 B.C. The very fact that these traits, be they a hangover, are in existence is a pointer to its slightly earlier dating. It appears that the movement of Harappans to Kutch took place at an early stage by *circa* 2300 B.C. and Surkotada was established and the waning pre-Harappans or early Harappan folks of the Sind and western Rajasthan regions, of course, came in small number with Harappans and colonized Kutch. The Kalibangan evidence, particularly in KLB-2 wherein the pre-Harappans continued up to mid-levels and then vanished away strongly suggests such a possibility. A similar position is available at Kot Diji and Amri.[1] Thapar has said rightly, "It would appear that the Indus Civilization could be a natural evolution through diffusion or interaction from some industries of the substratum but the evolution seems to be complete when the distinct culture came to the subcontinent in the form that we see it at Mohenjo-daro, Kalibangan.... maybe the result of an expansive movement of village communities sharing between themselves some basic elements but evolving their own patterns in each region. This would perhaps explain the various ramifications within this substratum."[2] Keeping these opinions in view, the chronological horizon of Period I A has to be seen.

PERIOD I B

During this period, the Harappan ware consists of a larger amount of buff ware sherds. The footed Indus goblet, characteristic feature of the middle and upper levels of Harappa, though absent in Period I A, now appears for the first time. The dish and basin-shaped miniature lids are also present. The Harappan motifs are reduced. Some shapes, e.g., 64, 67, 70-1 and 77 in fig. 33 show late traditions of Sind and Baluchistan.

The coarse red ware (35%-70%) which is the main ceramic ware of this period has adapted some Harappan shapes. The nonHarappan forms include deep basins with incurved rim and channel-handled bowls. This channel-handled bowl is not available in Saurashtra but its profusion in I B of Desalpar is significant. Generally speaking, the coarse red ware itself marks a later date in the Harappan assemblage in Saurashtra and Sind. The predominance of this ware is significant and probably marks the arrival of new folk on the site.

The sporadic occurrence of exotic wares like polychrome red ware, polytone ware and Reserved Slip ware shows a trickling of an early tradition and nothing more. So far as the antiquities are concerned all the Harappan antiquities are available except in the upper levels of the Period I B where a blade industry on chalcedony appears. Terracotta cakes and a heavy celt of copper and other copper objects are some significant finds. Crudely made bone tools of the type found in earlier subperiods continue.

There is not much change in architecture. As a matter of fact use of the same area of Harappans was continued. The mud brick size remained to be 10 x 20 x 40 cm. The building of mud brick revetment on rubble foundations practised in this period is an earlier trait.

[1] Walter A. Fairservis Jr., *The Roots of Ancient India*, (London, 1971), p 183

[2] Remarks by Shri B.K Thapar on the paper 'The Indus Civilization. Its origins, Authors, Extent and Chronology' by A Ghosh in *Indian Prehistory 1964*, (ed) by M S Mate and V N Mishra (Pune, 1965), p 137

An assessment of the cultural equipment shows that besides the presence of coarse red ware in a substantial quantity there does not seem to be any material change in Harappan life. The deposit of 1.60 m of Period I B does not indicate a very long span of habitational activity during this period.

From the residential annexe one Carbon-14 date is available for this period which is as below:

TF 1295, Chalcolithic Culture 3635±95 (3770 ± 95) — 1950 = 1940 B.C.

The carbon sample is from Trench G1, Qd.3 Layer 8 at a depth of 2 m B.S. in the residential area. The layer belongs to the early level of the Period I B. As the sample TF 1311 from the earliest levels of Period I C gives a date of 1790 B.C., the date of Period I B can easily be placed between *circa* 1940 to 1790 B.C. The end of Period I B is evidenced by a huge fire at the site but the succeeding Period IC does not show a culture break.

The entire evidence shows an assimilation of new trends into the Harappan culture and its continuance, of course, in a subservient and dormant position at the site.

PERIOD I C

In Period I C the Harappan red ware continues; rather it gets a fresh lease of life, showing some new infux of more Harappans. Some deterioration in form and content could be discerned. In Harappan red ware projected rims are absent and high-necked jars appear which are a significant characteristic. The Indus goblet increases and a mortar funnel of the Jhukar levels of Sind appears. For the first time, flat-based, bulbous bodied bowls and jars with a bottleneck and a hole-mouth are prolific in this period. The pottery lacks naturalistic patterns. The patterns compare well with the broad horizon of late Harappan assemblage.

The coarse red ware continues in this Period with lowered frequency and the new shapes in this ware are: large dish with an internally clubbed rim, perforated long-handled bowls, double perforated long-handled bowls with incised concentric circles and shallow punches and short stud-handled bowls. The appearance of short stud-handed bowls in I C is very interesting as it occurs in Rangpur II A and at Lothal from the earliest levels.

The forms in very coarse ware are fairly similar to the same type of ware available at Ahar along with black-and-red ware; the high-necked jars, bowls and bases are akin to Ahar and Lothal. The design repertoire shows a poor affinity. The short stud handled bowl of Lothal also occurs. Though the black-and-red ware connects it with Lothal and Ahar, the apparent chronological gap in so far as Lothal is concerned suggests a movement of black-and-red ware people during Period I C from Saurashtra to Surkotada and from Ahar to the west.

The antiquities are typically Harappan including terracotta cakes and copper objects, e.g., chisels, a drill and arrowhead are some of the diagnostic Harappan types. The short-blade industry is prolific along with Harappan chert blades. The mid-levels of the Period I C have yielded considerable quantity of carnelian beads including two hoards.

The rampart of dressed stones, bastions and an elaborate gateway complex have

Harappan influences. The building of houses very close to the rampart even in this period is an early tradition of Kot Diji which in turn is comparable to Anatolian and West Asian sites as suggested by Clarke and Piggott.[1] However, the streets are not straight. Drains are also not available. The mud brick has been scarcely used and has the same Harappan size of 10 x 20 x 40 cm. Use of burnt bricks of the size of 9 x 16 x 32 cm is also in evidence on top of one of the bastions. The standardized ratio of 1: 2 : 4 is in conformity with the Harappan tradition. A large community oven is a significant find [Pl. XXXV]. A terracotta seal without an animal representation is also available from this period.

An overall picture of the cultural equipment of Period I C shows Harappan influences of no meagre importance and at the same time suggests contacts with the contemporary black-and-red ware using cultures of Saurashtra and Ahar.

While the white painted black-and-red ware is available at Lothal from the earliest levels along with the Harappan culture and also at Rangpur, where it continues throughout, this ware is available only in Period I C at Surkotada. At Desalpur, too, this ware occurs only in Period IB. The question arises as to why such a chronological gap exists between Surkotada and Lothal in so far as the white painted black-and-red ware is concerned. The possible explanation, available at present, seems to be that at Lothal along with the Harappans the white painted black-and-red ware remained in subservient form but by *circa* 1700 B.C. with the decay of Harappan culture in Saurashtra it got a fresh lease of life and rejuvenated and started moving to Kutch where, in Period IC at Surkotada it is available with the Harappan ware. It is also possible that, at the same time with its remote connections with the Banas Valley, the white painted black-and-red ware culture got a fresh impetus in movement and expansion. It may indicate the coming to power of a people represented by the white painted black-and-red ware who remained in a subjugated state during the heyday of the Harappans and started a mass expansion by *circa* 1700 B.C. in Western India. Changeovers to complete stone architecture and short-blade industry may tend to support this view.

Now let us examine the four C-14 dates for this Period.

TF 1297, Chalcolithic culture, 3635± 95 (3740 ±95) — 1950 = 1790 B.C.

It is a sample of charcoal at a depth of 2.1 m B.S. from a pit sealed by Layer 3 Trench in C1, Qd.4 in the central region of the citadel and gives the earliest date for this subperiod.

TF 1311, Chalcolithic culture, 3625 ± 90 (3730 ± 90) — 1950 = 1780 B.C.

It is a sample of charcoal from Trench ZAI, Qd.2, Layer 4 at a depth of 2.4 m B.S. in the central region of the citadel area.

TF 1294, Chalcolithic culture, 3620 ± 95 (3730 ± 100) — 1950 = 1780 B.C.

It is a sample of charcoal from Trench XC, Qd.3, Layer 3 at a depth of 2.7 m B.S. from the citadel area.

TF 1307, Chalcolithic culture, 3510±105 (3610±100) — 1950 = 1660 B.C.

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[1] Mate, *op cit*., 1970, p. 79

It is a sample of charcoal from XA1, Qd.1, Layer 5 at a depth of 1.6 m B.S. from the citadel area.

Thus, the entire span of Period I C is from 1790 B.C. to 1660 B.C.

These carbon dates are more or less in conformity with the late phase of Harappa culture at Mohenjo-daro, Rojdi and Lothal and also from Ahar I A and I B.

The emergent picture after an evaluation of relative chronology and absolute dating suggests that the entire culture range at Surkotada is well within 2300 B.C. to 1750 B.C. and even a bit later in so far as the end is concerned. The earlier date for the beginning could be postulated due to the presence of early Indus elements in Period I A and close proximity of Kutch which is only about 400 km away from the sites in Sind. This could be possible due to the early migration through the land routes. The Harappan influence at Ahar discerned by Sankalia[1] and the availability of black-and-red ware at Surkotada and more recently in north Gujarat does not suggest a contact with Rajasthan. The movement of such cultures at a later stage of Harappan chronology is obvious in the changing broad matrix of culture in *circa* 1800 B.C. to 1700 B.C. in western India. It does not, however, give any clue to the Aryan expansion as envisaged by Agarwal on the basis of the evidence of white painted black-and-red ware of the Banas culture.[2]

H D Sankalia, S B Deo and Z D Ansari, *Excavation at Ahar*, (Poona, 1969), pp 221-222

D P Agarwal, 'C-14 dates, Banas culture and the Aryans', *Current Science* 35 no 5 (March, 5, 1968), pp 114-117 B K Thapar 'The Aryans: A Rearppaisal of the problem', *India's contribution to World Thought and Culture*, (ed) Dr Lokesh Chandra and S P Gupta, (Madras,1970)

7. THE POTTERY

INTRODUCTION

The present excavations at Surkotada have brought to light a Harappan assemblage. It came to be associated, however, during the course of its existence, with a number of ceramic groups, each of which seem to form a diagnostic trait in the ethnocultural makeup of the region and also to furnish an apology for distinguishing three subperiods in the occupation of the site. The characteristic features of each of the groups, along with their representative forms and decorations, if any, are given below in a chronological order. Here, however, a summary of the sequential occurrence of the various ceramic groups would perhaps not be out of place:

I. Harappan Red Ware;

II. A polytone cream slipped red ware, painted in varying shades of brown;

III. A polychrome red slipped red ware, painted in black and white;

IV. A black painted red slipped red ware;

V. A Reserve Slipped (Glazed) light-grey ware;

VI. A deep Burnt-Amber slipped red ware with a waxy feel and lastly;

VII. A coarse red ware.

It has been observed that though the above mentioned wares appear to be associated almost from the very beginning of the occupation, they are, in the main, characteristics only of the upper-half of the Phase I A. Even there, their vital statistics are confined to a range between 1.75 to 7 p.c. In subsequent periods their occurrence, though not altogether unknown, is only sporadic, negligible and hence insignificant.

All these wares, while sharing among themselves a common technical know-how, do not appear to betray any similitude with either the classical Harappan wares of the Sindhu-Sarasvati valleys, or, for that matter, with anything hitherto known from among the chalcolithic assemblages that came to flourish to their east. It is true, therefore, that the occurrence of these apparently exotic wares, particularly of the Reserve Slipped one, seems to assume an immensely enhanced significance in establishing the extraterritorial contacts that the site and the region might have had only a little after its establishment.

Characteristics of the subperiod I B, the second ceramic group, betraying a technically inferior potting-tradition, is solely comprised of a coarse red ware. Though beginning to be recorded from the upper-levels of the previous subperiod (2% to 10%.) upwards, it comes to form the bulk, gradually rising from 35 % to 70% of the total ceramic yield only in this subperiod. Thereafter, in the final subperiod its occurrence is noted for its consistent statistics (25% to 3.18%). It is rarely decorated with simple black strokes. Its gradual

infiltration and subsequent efflorescence in this subperiod is perhaps suggestive of the arrival of fresh ethnic strains in the region or at the site.

The third diagnostic group, which marks an influx of yet another technically alien potting tradition characteristic of the last sub period I C, is comprised of (i) a very coarse red ware, which accounts for the bulk (40% to 70%) of the total ceramic yield of the subperiod. It is occasionally embellished with applique and/or incised decorations. It had, however, an earlier beginning at the site, and tends to overlap with the last phase of the second group, than its otherwise constant concommitant, (ii) the black-and-red ware. Its statistics are, however, quite meagre, ranging only between 8% to 19%. Significantly enough, some of the open forms are sometimes found bearing, invariably on the inside, perhaps post-firing decorations in fugitive white (0.5% to 4.5%.).

It is, however, not without significance that an upward statistical trend is shown by the Harappan wares in this subperiod; it is perhaps indicative of the fact of their getting, in some inexplicable ways, a fresh lease of life. Besides, all the previously known decorative traditions, appear to continue in, however, a much deteriorated form and content. However, a coarse brown painted greenish-buffware, occurring in negligibly meagre amounts, does not appear to have had any genetic relationship with any of the preceding ware industries. As such, it is not unlikely to have some extraterritorial significance.

1. PERIOD I A

(i) Harappan Ware (Figs.10-15)

This ware has a quite individualistic appearance, distinct alike in fabric and form. It is a predominantly heavy and sturdy ware of superior fabric, made out of a finely levigated clay that burnt red or pink; the employment of a calcerous clay, well-attested to elsewhere, that burnt buff, is unusually restricted, both numerically as well as typologically (*cf.* Fig.15: 125-128). A degraissant like fine sand is used with a fine clay to enable it to withstand a very high temperature at which this group of wares was fired. It has a uniform red core and emits a ringing sound when struck. The cases of over or under fired vessels are quite negligible, suggesting an almost perfect control over the fuel and the fire. Though we have not been fortunate with the discovery of a kiln at the site, it may not be of much significance; even today, open-kilns produce a comparably good ware. As observed by Mackay, "the successful baking of pottery does not always depend on the type of furnace; the less the fuel needed the fewer are the cracked or miss-shaped vessels."[1]

In throwing the pots the use of a fast-wheel is indicated; the close-set parallel striation marks and even thickness bears out this fact. However, only in the case of low-pots with flat bases, the object would have been cut by a string and raised directly off the wheel. In a majority of cases, the neck, the body and the bottom appear to have been separately thrown on a fast-wheel and assembled only subsequently. This, too, is borne out by the incipiently thickening necks (*cf.* Figs. 10: 13, 15, 21; 11: 30) and rounded bottoms. Though not observed (see, however, Figs. 10:13; 13:91; 14:104) it is not unlikely

[1] E.H.J. Mackay, *Further Excavation at Mohenjo-daro*, (Delhi, 1938), pp.177-78

that the body of a large number of bulbous vessels was subsequently enlarged by beating, using the dabber and anvil method. The evidence for the latter, however, is sadly lacking,unless some of the round stone-balls or even smooth pebbles and flat-wood pieces were put to use. In many a case (*cf.* Fig.12:74) the string cut disc base was also only subsequently applied and this was invariably the case as far as the dish-on-stands are concerned.

As for as the surface treatment is concerned, an overwhelming majority of the vessels are given either a red wash or red slip over a dense and compact surface. Though no general principles could be enunciated as for the critiria for giving one or the other treatment is concerned, it has, however, been observed that the slipped surfaces tend to be more common with the decorated pots; the slip is probably reserved to reduce the absorbency of the pots and hence makes a better canvas for the aesthetic indulgences of the potter or probably, as is commonly believed, his spouse. Besides this red slip, instances of a black slip (*cf.* Figs. 10:11; 11:23) are also met with occasionally.

As said above, these slipped surfaces are normally painted in black. The use of a red pigment though known (*cf.* Figs. 13:85; 14:95, 110) is, however, quite rare. The patterns, confined in range, are either classical Harappan vegetal motifs or simple geometric forms. A few rare animal-motifs include only a stag (Fig. 13:85), a couple of swamp birds (Fig. 14:95,96) and probably also a peacock (Fig. 13:86).

Apart from these treatments having an aesthetic appeal, a couple of other modes are also in evidence. They include scouring and perforating. The latter, however, is solely restricted to the manufacture of vessels of indeterminate use. Regular perforations were bored from the outside while the pot was only leather hard, usually on the lower body portions of either a few bulbous jars (Fig. 11:24,27) or on the underside of a few deep basins (Fig.11:36,42,47). Here, the extra-thick surfaces appear to have been trimmed by a sharp instrument and, wherever observed, the movement of the sharp blade appears loosely-horizontal (Fig. 13:24) indicating its use on a pot in slow-revolution.

As far as the use of applique is concerned, it is confined to the prominent flanges (Fig.12:64,65). The available incised decorations are quite rare and limited to the flat bottom of the dishes. They appear to partake the form of either concentric circles done with a sharp point with the dish still on the wheel (Fig.15:114,117,118) in motion, or of finger-nail incisions arranged in concentric bands (Fig.15:115,116).

The evidence for burnishing is utterly lacking in this ware. This, however, is as it should have been. The burnishing tends to increase "the compactness and thereby the impermeability of the vessels surface"[1] Therefore, as the ware was already of a very fine, dense and compact texture, further efforts in that direction were rendered unnecessary.

As regards the typology of the ware, while details can be very well made out from the figures themselves and their descriptive comparisons, it would suffice to say that the flanged rim jars with or without an 'S' profile (Figs.12:64,65;14:95, 96), ovaloid jars with scoured body (Fig.11:24,27) and a few rare beaker-like basins (Fig.11:51) are some of the

[1] H. Frankfort, *Mesopotamia, Syria, and Egypt and their Earliest Interrelations*, Occasional Papers, No.6, Royal Anthropological Institute, (London:1924), p 6

typical forms that appear to go out of the fashion in the subsequent subperiods. It is perhaps also not without significance that the footed "Indus Goblet", which is the characteristic feature of the mid-levels upwards at Harappa and conformably quite non-existent in this subperiod, begins to occur only from the next subperiod onwards.

(ii) Polytone Cream Slipped Red Ware (Figs.16-21)

Though comparable to the above mentioned Harappan ware in the fineness of the levigated clay that burnt pink or red, the core, though hard-fired and well-baked, is less uniformly red, and the instances of over (Fig.18:44) or under-fired (Fig.16:11) vessels with blotchy surfaces are actually not rare.

However, a significant difference is seen in the mode of the pot-throwing; the striation marks are never parallel, horizontal or close, and the thickness of the sections is invariably uneven and irregular. These features suggest the employment of a slow-wobbling wheel; the rest is the same as above. The vessels appear to have been made in parts, assembled subsequently and thereafter enlarged by beating. One interesting feature noted in the case of the bowls is that the interior surfaces often bear deeper and wider striation marks, suggestive perhaps of the scooping done by a bunch of grass or something very much similar. While the round bottoms are the rule, flat or string cut bases are conspicous by their absence. The form repertoire, too, is very much restricted, the only identifiable shapes being small and medium sized low necked jars, medium sized convex sided bowls, sometimes provided with an almost cylindrical stand.

Another significant point of divergence is seen in the characteristic surface treatment. The surfaces are to a large extent coated with a thick yellowish-cream slip, ranging from whitish (Figs. 16: 18; 17: 26, 29; 18:52, 59; 21:126,134) to pinkish (Figs. 17:38; 18:60, 63, 64). In a few rare cases, a light white slip or wash, too, is indicated (Fig. 20:97, 98, 109, 111, 112) but probably as lime was used, it has often rubbed off; only occasionally, in combination with the white or cream slip, the upper parts of the body and the interiors of the bowls are also coated with a thick dark brown slip (Figs. 17:22, 23; 20:106,109,113).

These slipped surfaces are painted normally with a black-brown pigment. However, a polytone effect is achieved by using either light or heavy consistencies of the pigment-suspension, which, upon firing, turned to varying shades ranging from dark black through dark brown to light reddish brown. Almost invariably, the thicker lines are dark black to dark brown and the thinner ones range in shade from light brown to reddish brown.

The design repertoire available on this ware is, however, very much restricted in range and quite conservative. By far the commonest are the thin and thick horizontal bands and vertical columns filled with mat patterns, oblique strokes or multiple wavy lines, mat-filled meandering bands, mat-filled circles, and mesh bands painted all over the lower body. Among the other rare but interesting patterns, the following are worth mention: intersecting circles, chain patterns with lines across; solid triangles with either displaced bases and opposite apexes or solid squares or with those filled with wavy lines, hollow circles with alternating solid triangles or with a solid dotted border, dots and lastly, mat-filled lenticular body of a bird or a fish.

The most distinctive feature of these patterns, however, is the fine hairline brush

work, unparalleled in the whole range of either the Harappan or the non-Harappan wares of protohistoric India. The fine, thin lines that provide a glimpse of the control over the brush and the perfect balance in carrying the varied amount of colour suspension to the surfaces is a treat to behold. The lines are never broken or frayed but, on the contrary, invariably smooth and of even thickness throughout their length. Another highly characteristic trait of these patterns is an abundant use of the multiple brush technique which is invariably employed to delineate the multiple wavy-line bands.

So far as the antecedents of this ware are concerned, of perhaps the utmost significance is an almost total lack of comparable material in the neighbouring regions. It is not that the cream slipped red ware is unique to our site. Cream slipped red ware has consistently been found from Amri[1] on the Indus in Sind, from the Baluch highlands[2], from the Kalat[3] region in southern Baluchistan as also from Bampur[4] in Persian Baluchistan throughout the successive periods beginning from the earliest.

From Siah II levels in Kalat has come a description which seems to suit our pottery the most. There, occurring, however, in an insufficient quantity is "a hard wheel-made buff to reddish ware, smooth and free from visible grits, usually with a good cream slip," with geometric patterns in "black-brown and bands of light red or apricot infill". Significantly enough, associated with it as at Surkotada, is a "red slipped, with....zones of lighter tone....or in some cases a creamy white paint added to serve as a background for a linear design." Taken together, this material is thought to have "formed a group comprising a number of elements found in Amri ware".

Similarly, the recent excavations at Shahr-i-Sokhta in the Iranian Seistan have yielded a black to brown on Buff ware, possessing a polychrome decoration, that is said to have an obvious association with the black-on-buff and black-on-red slip pottery of southern Turkmenia, and in particular that originating from the strata of one Geoksjur tepe, datable to the Namazga III period.

Be as it may, unlike Surkotada, the colours most favoured at Shahr-i-Sokhta are red, white, yellow and blue; however, the attempt at "altering the colour of the paint by varying its dilution appears to have been exploited in order to achieve special bichromatic effect in the painted design"[5], is a feature that at once recalls to mind the one practised at Surkotada.

Apart from these similarities of the general approaches and associations, we have

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[1] J.M. Casal, *Fouilles D'Amri*, (Paris 1964).

[2] W.A Fairservis, 'Excavations in the Quetta Valley, West Pakistan', *APAMNH*, 45, pt.2,1956, p.255: Quetta A Black on Buff slip, var.1; Kechi Beg Black on Buff slip; 'Archaeological Surveys in Zhob and Loralai Districts, West Pakistan', *APAMNH*, 47, p.3, 1959, p.365:Jangal painted, var. I, and Periano painted, Var.I, Black on Buff slip.

[3] B. De Cardi, "Excavations and Reconnaissance in Kalat, West Pakistan - the Prehistoric sequence in the Surab Region", *Pakistan Archaeology*, No. 2, 1965, pp.135-36.

[4] B. De Cardi, "Excavations at Bampur, A Third millennium settlement in Persian Baluchistan, 1966", *APAMNH*, 51, pt 3 1970.

[5] Maurizio Tosi, "Excavations at Shahr-i-Sokhta: preliminary Report on the second campaign, September-December, 1968", *East and West*, N.S., Vol. 10.Nos.3 and 4, 1969, pp.322, 324-325.

thus far failed to record a fair minimum of common graphic designs and the intimately related forms in plastic media amongst these apparently similar-reading wares from over a very wide area.

In view of these general similarities and particular diversities, the most that can be safely assumed at the present stage of our study is: this Polytone Cream Slipped Red ware is perhaps a regional manifestation and a local adaptation of a very widespread ceramic tradition that at one stage of its expansion in the third and early second millennium B.C. seems to have extended from the Caspian coast in Central Asia through southeastern Iran, Baluchistan and Sind to Kutch.

(iii) Polychrome Red ware (Figs.22, 23, 24)

Here, too, the clay used is finely levigated and mixed with fine sand as temper. Though hard baked, the firing does not appear to have been evenly controlled, for the core is either often black streaked in the middle indicating high variability of the temperature, or buffish, suggestive of a constant but insufficient heat and low temperature. Again, if the indications of irregular striation marks, uneven thickness of the sections and the telltale marks of the finger depressions are any guide, this ware, too, appears to have been raised on a slow-wheel, if not on a tournette itself. Like the cream slipped ware, the necks and bottoms in all certainty were made separately and luted afterwards with the body; but unlike the cream slipped ware, here the luting is clumsily done and is quite obvious (Figs. 22:1, 5, 9,12; 23:30, 32,42); the rounded body was also, in all likelihood, enlarged by a subsequent operation involving a beating with dabber and mallet. In the matter of form, the ware has got, besides a majority of low necked, round bodied jars in a variety of sizes ranging from small to medium but never large, only a few bowls with either a convex or a bluntly carinated profile and a round bottom. Flat or string cut bases here, too, are conspicous by their absence.

These jars show a variety of surface treatments. While normally, the surfaces were treated with a red slip, the instances of cream and brown slips and white coating are not uncommon. In a few rare instances even the cream slipped surface was given yet another coat of either a light (Fig.23:37) or dark brown (Fig. 23:34) slip. But generally, when such double slips were used, they were given in clearly defined separate zones (Figs. 22:10, 14; 23:25, 33,36).

Over these slipped surfaces a variety of patterns were painted in colours ranging in consistencies from dark black to dark brown to light brown or reddish brown and white. Apart from a few instances of wavy lines or strokes (Fig.22:1,2), the use of white, though significant in itself, is, however, normally restricted to the fillings in between the otherwise painted patterns and appear to provide a pleasing background and tend to highlight the effect. The design elements include multiple horizontal bands with or without oblique, mat or wavy fillings, mesh band, wavy lines or strokes, suspended groups of vertical lines and columns with oblique or mat fillings, hanging chains with lines across, arches, zigzags and solid triangles in a pendant row with joined tips or with displaced bases and opposed apexes in panels, or, in a solitary case, within an oval.

Here, too, the quality of the line is quite fine and the control over the brush adequate. The employment of the multiple brush technique, however, is restricted in application.

This polychrome ware along with its intimately restricted typological range, like the one noticed above in the case of the polytone Cream Slipped Red Ware, is without any clear antecedents. The use of white besides the only other black/brown colour over a red surface, however, falls in line with that noticed on the Kechi Beg White on dark reddish-slip, variant,[1] the Jangal Polychrome where black and white designs are painted over red[2] and finally, the similar looking Fabric 'A' of the pre-Harappan Kalibangan.[3] The types are, however, altogether different and the patterns, save for the arches found on the last named ware, too, are not the same.

Thus, the superficial similarity coupled with the inherent divergences, seems to imply, as observed in the case of the polytone cream slipped Red Ware, only a widespread basal tradition, which was adapted to local conditions and tastes of the time.

(iv) Black painted Red slipped Ware (Figs.25-26)

Fashioned out of equally fine clay and temper, it is well-baked and emits a dull ringing sound. The firing, however, does not appear to have been evenly controlled; the cores are either unevenly red or buffish and in very many cases have a black streak in the middle, and the surfaces, though normally pink, are often blotchy, or even overburnt to a drab colour.

The striation marks are irregularly horizontal and sometimes even smudged; the sections are uneven in thickness and often bear finger impressions. All this goes to suggest the employment, as in the case of the earlier two wares, of a slow-wheel wobbling on its pivot. Made in parts, the vessels were carefully luted and the joints smoothened afterwards.

The range of forms is, however, restricted to low or high necked big or small bulbous jars and a few carination profiled bowls, often on high cylindrical stands.

The dense and compact surfaces are normally treated with a thin light red slip. Only in a few rare case (Figs. 25:19;26:27) a shimmering violet grey thin slip reminiscent of Kayatha ware is in evidence. Again, only in a couple of cases the red slip has a shiny look and appears to have been horizontally burnished (Fig. 26:46).

These prepared surfaces are invariably decorated with simple patterns painted in black with a heavy hand and lacking in confidence and surety of touch. The lines often tend to waver and the brush leaves frayed edges. The range of patterns is again limited to multiple horizontal bands, broad mat or mesh filled bands or columns, columns either filled or bordered with wavy lines, inverted triangles filled with mesh patterns, chain patterns with lines across their length and circles with either solid crescents or hatched triangles and dotted lines and also hollow circles.

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[1] Fairservis, *op. cit.*, 1956, p.257.

[2] Fairservis, *op. cit.*, 1959, p.369.

[3] *I.A.R.*, 1962-63.

(v) Reserve Slipped Glazed Ware (Figs. 27:IA-2, 11-19; IB-7,10; IC-1,3-6, 8-9)

Made out of a well refined finely levigated clay that often burnt grey, but sometimes buff (Fig.27:13) or even pink (18), these vessels and sherds alike are well-baked, emitting a ringing sound. Irregular striation marks and an uneven thickness of the sides suggests the use of nothing more than a slow wheel. The extant necks (17, 19) show distinct traces of luting. In case of another vessel (13) the hole-mouth is evidently pinched and luted afterwards. In another instance, however, the body itself (14) is pinched down to produce a narrow hole-mouth. However, significantly enough, in the case of another pot (12), the inside from the shoulder upwards to the hole-mouth distinctly shows the employment of a single strip that was luted to the body and then coiled round four times till the hole-mouth was fashioned.

Once the pots were fashioned, the outer surface must necessarily have been smoothened before the bluish grey or sometimes purplish slip (11, 13, 16) could be applied. Afterwards the slipped surfaces were carefully burnished. Over this horizontally burnished plane, a creamy coat was again applied, a part of which was subsequently removed with wavy or straight horizontal movements of a comb-like multi broad-toothed contrivance, exposing thereby the earlier bluish slip. In the specimens from the lower levels of Mohenjo-daro, Plenderleith has discovered the later white coat to be a vitreous glaze.[1] This may also be equally applicable to the specimens from Surkotada, particularly to those from the levels of Period I A.

Similar sherds have been reported, of course in very meagre numbers never exceeding ten, from a number of excavated and explored sites in India and Mesopotamia. Thus, the very early levels of both Mohenjo-daro[2] and Chanhudaro[3] have yielded only seven and three sherds respectively. Likewise, Rao has reported the occurrence of a few similar sherds at Lothal[4] in levels belonging to the third structural phase from the bottom of Lothal A (II B). Recently, a solitary sherd of equivalent make and fabric was discovered in the pre-Prabhas deposits at Somnath[5]. In Mesopotamia too, similar looking sherds with, however, 'a reddish brown' (purplish?) wash have been consistently occurring in the Sargonid levels at Brak[6] in the Khabur valley, at T.Jidle on the Balikh[7], at Ur and at Nineveh

In Kutch, however, besides the present excavations, similar shards have also been reported as occurring on 'almost at the lowest levels'[8] of Desalpar I A. In between these

[1] H.J. Plenderleith, "Notes on Glazed pottery", in Sir J. Marshall, *Mohenjodaro and the Indus Civilization*, Vol. II, (London 1931), Appendix II, p.692

[2] Marshal, *op.cit.*, 1931, p. 578; Pl CLIX.1,2 (three sherds), Mackay, *op.cit.*, 1937, p 188, Pl LXX-1-4 (several more)

[3] Mackay, 1943, p.72, Pl. XXXVIII.26, 27 and 29.

[4] S.R. Rao, 'Further Excavation at Lothal', *Lalit Kala*, No.11, 1962, cf *I.A.R.* 1957-58, p. 13, Pl XVI A

[5] Seen by the author at the site in the last week of March, 1972 and shown to the Director, Surkotada Excavations by Dr Sankalia in April, 1972.

[6] Mallowan, *op.cit.*, 1947, p.191, Pl XLIII.1-4

[7] M E L. Mallowan, 'Excavations in the Balikh Valley', *Iraq*, VIII, 1946, p.135.

[8] *I.A.R.*, 1963-64, p.11.

two excavated sites, the ware has been consistently reported from the surface explorations at Kerasi, Pabumath, Lakhapar, Jhangar and Kotda in the west[1].

Both Mackay and Mallowan had, in view of the rarity of the fabric and the nonavailability of the forms, expressed their inability to pinpoint its epicentre. Here, however, we have found, for the first time, the complete forms, which include a large number of hole-mouthed 'oil-bottles' and, in diminishing frequency, only a few concave necked small jars with rounded bodies and perhaps a solitary shallow basin. Nonetheless, though not out of bounds of a reasonably restrained imagination, it would, in the present stage of our study, be premature to claim Surkotada as its centre of origin. Be what it may, the fact of its close concentration in the sea girth region of Kutch, its total absence on the land-located northern stations of the Harappan civilization, as well as its occurrence only on the sites intimately connected with the Arabian coast, (for this ware has so far never been discovered in the vast territories of Baluchistan and Seistan lying between the rivers *Sindhu* in the east and Euphrates in the west), seem to make it obvious that this ware, the container of a rather rare commodity, was involved only in maritime traffic.

Again, it is only here that the ware, in however degenerate a form, persists throughout the two upper subperiods. Though the clay remains equally fine, the forms appear to undergo a change. The hole-mouthed vessels of subperiod I A are conspicuous by their absence in subperiod I B where only the body fragment of bulbous jars have been found. In the final subperiod in I C, on the other hand, only globular jars with concave and constricted necks and a shallow basin represent the old types. Here, however, two new forms, perhaps adapted from the other contemporary wares, are introduced. One is a concave necked, wide-mouthed bulbous jar and the other is a base of a dish/bowl-on-stand. Save for this last which, as close parallel striation marks show, is probably made on a fast-wheel, the rest of the sherds appear to have been only handmade.

Another point worth mentioning is that, while the smaller fragment still have a glazed-looking white wavy or horizontal band, the same in the dish (1), the wide mouthed jars (3-4) and in the stem base (8) appears only to be only a nonvitreous slip. It is, therefore, not unlikely, that they were only imitation pieces.

(vi) Deep Red Burnt-Amber Slipped Red Ware (Fig.27:20-23)

This highly individualistic ware has the distinction of yielding only a couple of score of sherds only from the lower and the middle levels of Subperiod I A. Made of a highly refined well-levigated clay admixed with fine sand as degraissant, the ware has a pink body. The uniform colour of the section and the ringing sound suggests its firing at high temperatures. The close and parallel striation marks and the medium-thick and even sections indicate the employment of a fast-wheel in its manufacture. What, however, gives it a highly individualistic character is a thick, deep red burnt-amber slip, which has a waxy feel when touched. Besides this characteristic slip, no other decoration has been noticed on these sherds.

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[1] J.P Joshi, 'Exploration in Northern Kutch', *Journal of the Oriental Institute*, Baroda, Vol. XVI, No.1, 1966, pp. 65-67, fig. 4 and 4B.

So far, only a dish, probably dish-on-stand, a couple of cylindrical stems and mildly concave necked bulbous jars have been recognized to occur in this rare fabric.

Again, it has not been possible to establish its antecedents and parallels from only the descriptions in the reports, dealing with the sites located in the regions surrounding the Arabian sea. In such matters, only an actual comparison by handling the various wares can be of any avail, and we will be grateful to other knowledgeable colleagues-in-trade for throwing any welcome light in this matter.

(vii) Coarse Red Ware(Figs.28-29,30:1,3)

This is another distinctive ware which, though found trickling in the upper levels of the subperiod I A, assumes only in the next subperiod I B, an appreciable bulk and status. The clay employed in its manufacture is quite well refined and well levigated but largely less so than that for the above mentioned wares. The degraissant used is perhaps fine sand only in a few larger jars; in a large number of others it appears to be only a coarse sand, sometimes mixed with ground pottery, but never with any organic material like straw, husk, etc. Though baked hard and red, the unevenly red cores, often having a darker or even a black grey streak in the middle of the sections, are indicative not only of the high variability of the temperature but also of a far from satisfactory arrangement of the vessels to be fired in the kiln, that was, however, capable of producing sufficient heat. Cases of over and underfired vessels are also often met with. Again, the uneven thickness of the sections, the irregular and often smudgy striation marks noted on the vessels go to suggest the employment of a slow and unsteady wheel in the manufacture of the vessels. The frequent occurrence of finger depressions, the thick and heavy sections and the occasional occurrence of bold striation marks verging on to the grooves on the shoulder of the bulbous and also on the inside of open vessels and the quite obvious luting marks on the shoulder and below the waist, are perhaps suggestive of the ware being hand finished, if not actually hand modelled, to a large extent.

The only shapes met with in this ware in the upper levels of subperiod I A are a graduated series of low necked, generally open mouthed jars ranging in size from very large to very small, deep basins and convex-profiled bowls; in addition to these common forms there also occur a few rare bowls-on-stand and a solitary piece of a concave-sided basin with a carinated bottom.

In the matter of surface treatment the ware gives an appearance of being quite neglected. In a large number of vessels only an indifferent red wash is given over the surfaces. In a few cases only a dark brown wash or thin slip (Figs. 28:9;29:43) is noticed. However, the rare decorated pieces happen to have had a red slip, which in only two instances (Figs. 28:26; 29:44) appears to have undergone some sort of horizontal burnishing. In a majority of medium sized vases and basins, the outer surface is roughly trimmed.

A fairly large number of bottoms belonging to vessels of this fabric, appear to bear thick sootmarks. Thus, in general, this pottery group served only a utilitarian purpose. It is, therefore, in the fitness of things that only a few pots, specially treated with a red slip, were decorated with simple patterns painted in black. The design element is restricted only to simple, short and thick strokes on the inside and outside of rims. However,

individual cases of multiple horizontal bands with either a row of loops below or a row of pendant, elongated hook-tipped solid triangles or mat or wavy-lines filled columns or a fly-whisk have also been noticed.

2. PERIOD I B

(i) Harappan ware (Figs. 31,32 and 33)

As far as the composition of the clay and the adxmixture of the degraissant, the mode of firing, the method of manufacture, and the treatment of the surfaces are concerned, no additional observation needs to be added to what has already said above.

The occurrence of a larger amount of buff ware sherds (*cf.* Fig. 34:1-5) betraying the existence of globular jars with horizontal bands of fine incised lines, deep basins with incurved rims and dish-on-stand seems, however, to indicate a fairly common use pf a calcareous clay that burn-buff. The typology and the design repertoire, on the other hand, certainly deserve careful consideration.

In the range of forms while the projected rims in the large storage jars and the collared rims in the deep basins appear to have become more common, the basins with nail-headed rims and carinated profiles seem to have lost their grip over the contemporary ceramic trend. The absence in Subperiod I A and the presence in the subperiod I B of basin-shaped dish and miniature lids (Fig.32:45-47), on the other hand, may or may not be of much significance. Similar is the case with a possible squat pedestalled jar (Fig. 32:52). In this subperiod I B the first appearance of the footed a 'Indus Goblet' (Fig.31:19-20), characteristic feature of the upper half of the Harappan levels at Harappa, however, seems to be of some significance.

On the whole, this apparently quantitative as well as the qualitative typological poverty of the Harappan ware seems to indicate not only a short duration, but possibly also the arrival, in some bulk, of alien folks. It was, in all likelihood, their coarse red ware that must, by providing a number of utilitarian forms, have complimented the otherwise restricted range of forms available in the Harappan ware.

A likely major change becomes quite apparent in the shifting emphasis that is so readily discernible in the design repertoire. It is in this subperiod that, in addition to only a much reduced number of classical Harappan motifs (Fig.33:55,61,63), there appear a number of geometrical patterns, seemingly resembling those that are found delineated on a number of prehistoric wares from the Baluchi highlands. Amongst these, particular attention may be drawn to nos. 64, 67, 70-1 and 77 (all in Fig. 33). Besides, a few others (Fig. 33:62,65,66) again appear to connect the earlier Baluchi cultures with those late Harappan assemblages that have been discovered not only in the last Subperiod I C of the present site, but also throughout the length and breadth of the Saurashtrian peninsula.

(ii) Polytone Cream Slipped Ware (Fig. 34)

In this and other allied wares, though the constructional details remain the same as before, both the clay composition and the firing conditions seem to have undergone a

marked deterioration. The fine clay now appears to have been mixed with a coarser tempering material, whose grains often show in the fractures. In the matter of firing, too, the pots, having a fairly large percentage of either semioxidized cores or over burnt brownish-black bodies, indicate quite an unsatisfactory control over the amount and duration of the heat produced.

There is no change in the range of forms which continue to include, in reduced frequencies however, the bulbous vessels and bowls and bowl-on-stand. In matters of surface treatment thin to thick cream slip, that now tends to be more dusty looking than in the earlier period, shows a fairly good degree of adhesion.

The decorations continue to be painted in shades varying from black to dark brown to lightbrown, but the polytone effect of the previous period is missing to a large extent. The finer technique of the use of a multiple-brush is conspicuous by its absence and the lines tend to be heavy and clumsily drawn. So far as the design elements are concerned, the range, though including almost all the earlier elements save for the multiple wavy lines, is very limited and conservative. The only addition seems to be No.16 (Fig.34), which, however, is only a variant of No.77 (Fig. 32) found on the Harappan ware.

(iii) Polychrome Red Slipped Ware (Fig. 35)

Continuing to be made in the same old fashion, the clay in this ware seems to have deteriorated largely owing to the admixture of a coarse grained temper. The firing, too, is quite indifferent; save for a few, all the fragments tend to have only semioxidized sections and blotchy surfaces. In a couple of cases, however, the body as well as the core has burnt pinkish buff, perhaps due either to the presence of a fair amount of calcareous clay particles, or alternatively, through insufficient but uniform temperature.

The range of forms continues to be confined only to concave-necked bulbous jars and a few bowls.

Almost all the fragments are treated with a thin red slip, which has assumed, probably due to the varying density of the heat in the kiln, a deeper hue, over which the designs are painted in black to brown against a local background of white, or in a few rare cases (Fig. 35:1), in white over a black band. In the sherds already referred to with a pinkish buff-core and body, the paint seems to have burnt to reddish-brown.

The design repertoire, though continuing to employ such previously common elements as chain bands, solid triangles with displaced bases, and hanging groups of wavy lines, seems to have been enriched by the addition of a few designs (cf. Fig. 35:5, 8, 9, 12, 15, 17) that appear to have their prototypes in the protohistoric cultures of the Baluch highlands.

(iv) Coarse Red Ware (Figs. 36-39; 40:84-95-upper half)

But for the quantitive profusion, no other change in the method of manufacture could be discerned in this ware in the Subperiod IC. However, the quality of the clay shows a perceptible deterioration owing largely to a more general use of coarse sand and ground potsherds as tempering material. In firing, too, save for the much more frequent occurrence of overfired sherds, no other difference could be detected.

In matters of surface treatment, the medium-sized bulbous jars continue to have trimmed and roughened exteriors and the pottery, on the whole, was continuously treated with an indifferent red wash. Only a few rare decorated pots appear to have been given a sort of red slip, over which rim-bands with short vertical fillers (Figs. 38:45;39:75; 40:85), multiple horizontal bands on either the interior or the exterior or both (Figs. 36:3; 37:34, 36; 39:72, 77, 83) the surfaces, and only in a solitary case, a mat-filled horizontal band with hanging multiple wavy lines in black (Fig. 36:8) seem to complete the inventory.

In the range of forms, however, many new and interesting additions, apparently deriving inspiration from the Harappan ware of the previous subperiod, meet the eye. Among these, mention may be made of a large sturdy jar with a splayed out rim (Fig. 36:1), a series of medium sized, low necked bulbous vessels (cf. Figs. 36-37), a deep basin with a short splayed out rim (Fig. 38:42), flat-based basins with tapering sides (Fig. 40: 84-86), perforated cylindrical jars, sometimes with a small, flat base (Fig. 40:87,89) and lastly a beaker (Fig. 40:42). Besides these, the other new, but palpably non-Harappan forms include a graded series of deep basins with incurved rims (Fig. 39:68-72) and a channel-handled bowl (Fig. 40:90-91). This last form seems to have a chronological significance, especially in view of its absence in the lowest levels of subperiod IA and its occurrence only from the mid-Harappan levels onwards, till it became particularly profuse in subperiod I B, of Desalpar in Western Kutch,[1] and not in the Saurashtra peninsula, where so far, only stud handled bowls have been reported.

(v) Very Coarse Red Ware (Fig. 40:1-6-lower half)

As already mentioned in the introduction, the specimens of this ware have consistently been occurring in the upper levels of the Subperiod IB where the subsequent black-and-red ware is conspicuous by its absence. As they seem to form but only a negligible fraction of what has been found in the Subperiod I C, its general features, for fear of much unnecessary repetition, have been given in detail only there.

3. PERIOD I C

(i) Harappan Ware (Figs.41-50; 51:1-13-upper half)

There is nothing new to note about the technique and surface treatment of the vessels in this ware, with the exception perhaps of a rather relatively extensive use of a local calcareous clay that burnt buff and of a brighter hue produced in the red slipped surfaces. However, in the red slipped surfaces, the range of forms and the motif repertoire had certainly undergone further evolution and innovation.

So far as the buff ware (Fig.51:1-13) is concerned, it is almost invariably thrown on a fast wheel and includes such forms as low and concave necked jars, dishes (on stands?), simple bowls and curiously enough, a ring-footed round bottom. In one case, however, the uneven thickness of the section (Fig. 51:8) suggests hand modelling and only in a solitary example (Fig.51:4) certain traces of the employment of the paring technique

[1] *I.A.R.*, 1963-64, p.12.

could be discerned. Some of these vessels are decorated with simple contemporary motifs painted in shades of brown.

In the sphere of typology of the prolific red ware, while the projected rims are totally absent, a few high necked jars and ovaloid vessels with a flat , small bottom seem to appear in the large sized category. Here, mention may also be made probably of a mortar-funnel (Fig.46:5) the likes of which have been reported only from the Jhukar levels of Chanhudaro in Sind. Among the medium sized group, while the footed 'Indus Goblet' becomes more common, the new forms to emerge are firstly, a series of bowls, preferably flat based, and secondly, bulbous bodied 'oil jars' with a bottleneck and a narrow hole mouth. Such 'oil jars', though known to occur at Harappa and Mohenjo-Daro in early levels, are nowhere reported in such profusion as in the subperiod I C at Surkotada. It is therefore, tempting to suggest that the passage of the earlier Reserve slip ware 'oil bottles' into oblivion had necessitated - for the *Gandhis* of the region - a switchover to an equally impermeable, if not distinctive, fabric such as the Harappan ware certainly is.

Coming to the black painted decoration, it needs to be said at the outset that by now the application of single, horizontal, double or multiple bands, sometimes to the extent of overcrowding the surfaces, seem to have become a normal feature. These bands, however, cannot be included under the term 'painted pottery', which implies a conscious effort on the part of the potter to satisfy an aesthetic need in the form of a pleasing pattern composed of devious strokes. Such an aesthetic effort, though present in a fairly high proportion of pottery, takes the form, however, only of geometric shapes. The naturalistic motifs, so characteristic of the classical Harappan ceramic art, are sadly lacking. Whether it was a revolt of the new generation against the old artistic norms, or only a realization and reflection of their newfound ecological background- of that we cannot be certain.

This much, however, is apparent that these geometric patterns seem to conform to the trend already met with in the Subperiod IB and appear only to be a further evolution of the motifs that perhaps derive their inspiration from those trans-Indus cultures that once dotted the Baluchi highlands. They further seem to admirably fit in the larger horizons of the Late Harappan assemblage from the Saurashtrian peninsula and also appear to furnish a suitable, even if remote, backdrop to the post-Harappan chalcolithic cultures of Western India and Northern Deccan.

(ii) Greenish-Buff Ware (Fig. 51:14-32)

The excavations in the levels belonging to the last Subperiod I C have yielded, though consistently, only a meagre number of sherds, which may or may not have a separate identity of their own. But as they seem to form a group distinct from either the Harappan ware or any of the other non-Harappan wares at the site, we propose to treat them separately and be on the safer side.

The clay is fine to coarse sandy, and the vessels, though hard baked, have a greenish buff section and body. Irregular striation marks, unevenly thick and thin sections, and the tell-tale finger depressions seem to suggest the employment of a slow wheel in producing the parts which were quite obviously assembled and luted subsequently. The

surface treatment, too, is somewhat unusual, for, either a self-slip was used or else the exterior was only wet-smoothened and only occasionally burnished. In a majority of cases, however, only the patches of smoothened surfaces and traces of burnished sheen remain; the rest assume a coarser look, owing perhaps to the soil action.

Over these prepared surfaces, only geometric motifs in conformity with the general trend of times were painted in dark-brown verging on to violet and black. The only identifiable shapes belong to medium to small concave necked globular jars.

The whole look and feel of the sherds is exotic and outlandish. Though actually unconfirmed, the sherds seem to recall the descriptions and the illustrated motifs of the pottery from the excavations at *Ras Al'Amiya* in Mesopotamia situated midway between the rivers Tigris and the Euphrates[1]. There, however, the ware shows not only "a wide variety of shapes including bowls, dishes, jars, beakers and a number of vases of distinctive types"[1], but is assigned, unfortunately for us, to "a date not far removed from the blurred point 'the end of the Hajji-Muhammed Period' or, to put it in more precise stratigraphical terms, the "time of Eridu XX" in the 3rd century B.C.[2]

As our levels of Sub period I C cannot, at present, be dated to a period later than the 17th-18th centuries B.C., the whole comparison appears to be simply preposterous and becomes rather an exercise in futility.

(iii) Cream Slipped Red Ware (Fig. 52)

In this subperiod the ware appears to have been reduced only to become the shadow of what it once was. The few fragments that we have present a motley crowd of technically far varied fabrics sharing in common only some sort of a cream slip. While the clay of some (e.g., of nos. 2-4, 12-14, 18, 20-1) remains in fineness the one used in the similar ware of previous periods, that of the others varies between the less fine to coarse, having a clear admixture of coarse sand and grit. In firing, too, the same categorization is apparent; while all the finer sherds, save one (no.4) which is an over burnt black, are burnt to a pinkish buff body, presumably at a reduced but uniform temperature, the others are invariably only semioxidized; in throwing, however, nothing new in technique seems to be worth adding.

Surface treatment, too, is quite varied, ranging between thick cream (nos. 9,11-14,17) to pinkish buff (nos. 2, 1, 18-20) to yellowish red (nos. 1,15,16)slip. These sherds are decorated with only a few evolved patterns painted in shades ranging from dark brown to light brown looking red (no.8) and only once black (no.1). The quality of the lines and brush work is highly variable from fine (nos.9,11) to heavy and, often enough quite clumsy.

Among the range of forms, however, particular mention may be made of a hole mouthed 'oil-bottle' that is reminiscent of similar shapes found in the Reserve Slipped Glazed ware of Subperiod I A.

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[1] D. Stronach, 'Excavations at Ras Al'Amiya', *Iraq.*, XXIII,1961,p.108.

[2] Edith Porada, "The Relative Chronology of Mesopotamia - part i" in *Chronologies in Old World Archaeology*, (ed) R.W. Ehrich, (Chicago, 1965), p.150 and the chart on p. 176.

In view of these divergences in the technical quality of the sherds, it is not unlikely that, while the finer group of sherds might actually represent the traditional 'heirlooms', the coarser group were the contemporary attempts at reviving the lost art.

(iv) Polychrome Red Slipped Ware (Fig. 53:1-13)

In this ware, too, while there is possibly nothing new to add by way of technological innovation, the divergences in the clay-composition are apparent; the well levigated clay ranges in texture from fine to coarse and it may be due largely to the quality of the sand added as temper. The surfaces are invariably red slipped; in two rare specimens (nos. 5,9), however, they have assumed a deep red glazed (?) look. The painted decoration is in black or black-brown and white-cream. Usually, the white is applied all over the black background, but in a couple of instances (nos. 3,6) the black pattern is painted over a white background. In another unique specimen e.g., no.7, the polychromatic effect is achieved by painting the black design over a cream band given on a deep red slipped surface. There is nothing new or unusual among the patterns, save for quite modern-looking instance of a horizontal black band having multiple rows of white dots above it and multiple curved strokes in white below over a red slipped surface.

The typology is quite conservative and includes, besides a majority of medium and small sized bulbous jars, only rare instances of bowls with or without stands.

(v) Black Painted Red Slipped Ware (Fig. 53:14-21)

Though not identified in the previous Subperiod I B, this ware, occurring only in neglible numbers, is made up of almost as fine a clay as that in the Subperiod I A. Firing is generally uniform and good, and the mode of manufacture also remains unchanged, including the traces of scooping observed on the inside of the bowls. The types are limited to medium to small sized jars and a few shallow bowls or dishes with sharply inturned sides and featureless rims. The surfaces are treated only with a thin slip often amounting to a mere wash, and save for a solitary instance e.g., no.14, no trace of a polish of any sort seems to exist.

The simple designs, painted over in dull black, however, include a couple of patterns that seem to deserve a more than passing reference. Firstly, mention may be made of a band of multiple wavy lines (nos.20) which, though heavily drawn, betray the use of a multiple brush technique. Secondly, a double wavy stroke laid horizontally between groups of vertical lines, painted as fillers within a couple of broad horizontal bands in brown, though quite simple, at once reminds one of the similar patterns often found painted on the Baluchistan prehistoric pottery.

(vi) Coarse Red Ware (Figs. 54-55)

But for a lowered frequency of the occurrence, no change in either clay composition or firing, or the mode of manufacture or even the surface treatment is observed in the ware during this last sub-period I C.

In matters of decoration, however, some slight novelty is to be noticed. In the second sub-period I B, the decoration had become largely confined only to simply horizontal bands and short vertical strokes on the rims. In this subperiod, however, the dying flicker

appears to have added a new glow, and a variety of simple, yet pleasing, patterns are available. Thus, mention may be made, besides the ubiquitous single or double rim bands, of horizontal bands, alternate straight and wavy lines (Fig. 54:1), multiple vertical lines within double lined horizontal borders (Fig. 54:7), double lined hollow and irregular circles with the intervening spaces filled with mesh patterns (Fig. 54:10), a row of circles with oblique wavy lines inside (Fig. 54:17), horizontal bands enclosing rows of multiple loops (fly-whisks) with opposed ends (Fig. 54:15) and a double lined band with two vertical strokes and a series of loops above it (Fig.54:14). Besides these painted patterns, the applique decorations comprising horizontal, straight and wavy bands (Fig. 55:35-36) and incised concentric circles with intervening rows of shallow-punches (Fig. 55:26) are also in evidence.

In the sphere of typological range, however, the ware appears to have added a few new forms that seem to have some correlative significance. Thus, while the projected-rim jars and perforated cylindrical vessels and channel-handled bowls, introduced in the Sub-period I B, continue to be fashioned along with other short concave necked jars and deep basins and low pedestalled bowls, the new forms to appear are as follows:

(i) large dish with an internally clubbed rim (Fig.55:27), (ii) perforated lug-handled bowls (Fig.55:31), (iii) perforated double lug-handled pan with incised concentric circles and shallow punches on the interior bottom (Fig. 55:26), and lastly (iv) short stud-handled bowls (Fig. 55:30).

Of these, while the similar pans and stud handled bowls also occur in the contemporary black-and-red ware (see below), the last has not been reported from any of the subperiods from either Desalpar in the west or in Ahar and allied sites in the east. At the former site, on the other hand, only the channel-handled bowls were found beginning from the mid-Harappan levels upwards. This form has thus far not been recorded from outside Kutch.

The stud-handled bowl, on the contrary, begins to be encountered in the micaceous red and the white painted black-and-red ware at Lothal even from the lowermost levels that may eventually antedate the arrival of the Harappans at the site. Here, as well as at Rangpur in the neighbourhood, however, the handle has a tendency to get elongated in the upper levels.

Be what it may, the size of our handle compares favourably with those occurring at Rangpur II A.

(vii) Very Coarse Red Ware (Figs. 56-58)

Its clay is not levigated; concretionary and coarse granular sand and powdered pottery appear to have been added by way of temper. The cores are only very rarely fully oxidized, the sections being normally 3/4 black. Surfaces, too, as a rule are blotchy. These features suggest a sudden rise and equally, if not more, sudden fall of the temperature in the kiln and indicate that almost no control could be exercised over the amount of heat produced in a very simple oven.

As mentioned above, the texture of the vessels is invariably gritty and has, therefore,

failed to register the striation marks and those few that could be observed are only wash-deep and indicate, in all likelihood, only the passage and direction of the slip-rag and not the rotationary movement of the wheel. Moreover, being liable to disintegrate under the velocity of a rotating wheel, the paste of such a concretionary, grit tempered clay is normally held to be quite unsuitable even for a show-wheel throwing. In view of this, as also of the uneven thickness of the walls of the vessels often having finger depressions on the interior, the ware may only have been hand modelled, the enlarging of bodies being done by beating alone. In some cases, however, the rims and the necks appear to be quite even and regular and it is not impossible that they were fashioned on a slow revolving wheel or on a turn table, if not actually in some sort of mould.

Owing largely to these limitations, the range of forms available in this ware is restricted almost only to a series of short concave necked large to medium sized bulbous jars, meant perhaps for storage and cooking purposes respectively. Only a few rare perforated jars with either a ring base or a hole bottom (Fig. 55:23-24) and even rarer basins (Fig. 56:25) inspired perhaps by the Harappan ware, are also noticed.

In matters of surface treatment, too, an almost total aesthetic indifference is noticeable. However, as the ware was meant only for rough daily use, some particularly utilitarian devices appear to have been taken recourse to. Thus, the outer surfaces of at least the medium sized vessels were invariably coarsened and treated with an application of coarse sand. The scouring marks are rarely observed. Such a process, however, need not be denied, for the concretionary composition of the clay is quite impervious to, and would tend to readily obliterate, the passage of any such fine edged instrument as might have been used to scour.

The surfaces of the vessels are normally porous and therefore, as observed earlier, they were again invariably treated in the case of medium to small sized jars with a red slip, applied through the medium of possibly a rag, on the interior and on the exterior only up to the beginning of the rustication. This slip has often burnt pinkish buff, yet another indication of a slow and insufficient heat.

In the case of large storage jars, however, the outer surfaces and parts of the inner rim and the neck generally appear to have been treated with a thin slip, which, in a few instances, has burnt deep red tan.

However, what makes the ware singularly distinctive, is its simple but pleasing repertoire of applique and incised decorative motifs. Found normally on slipped vessels, these motifs include incipient horizontal ridges (Fig. 57:26), bold applique ribbings with incised diamonds (Fig. 57:35) and notches (fig. 53:39,40), and deeply incised pin-holes (Fig. 57:37-38), short vertical strokes (Fig. 57:31-33), single or multiple zigzags (Fig. 57:27-34), chevrons (Fig. 58:45) and crisscross lines (Fig. 58:46-53).

Though fairly common, this fabric and these simple applique and incised motifs are found, as here, together with a white painted black-and-red ware, at Ahar and in other related sites. Thus, a fairly coherent picture, seemingly suggestive of the direction from which the fresh wave of aliens came, seems to be presented in this last subperiod at the site.

(viii) Black-and-Red-Ware (Figs. 59-62)

Last, but not the least, an highly distinctive ware of this subperiod I C is the black-and-red ware, sometimes bearing painted decorations in white, invariably on the inside of the bowls. From the evidence of the available material this ware can be divided into the following broad categories:

(a) Of coarse fabric with gritty core and slipped mat-surfaces, having a few storage jars only with ridged profiles of applied bands on the shoulders, medium sized globular jars, pans with or without incised concentric circles and shallow punches, or shallow depressions only on the inside, occasionally provided with perforated lug handles.

(bi) Of fine fabric with smooth core and burnished but plain surfaces having a graded series of bowls, dishes, sometimes also on stands, and occasionally stud-handled bowls; and,

(bii) Of an equally fine fabric with burnished and white painted surfaces having a large number of graded bowls and rarely, medium sized jars.

Though made of a fine levigated clay, the first category, as the name itself implies, has a greater proportion of coarse sand and sometimes other gritty temper, but does not appear to include any organic material. In the other two categories of fine fabric, while the coarse sand continues, the grit is not apparent in the sections.

In the makeup of this ware as a whole, the employment of a fast wheel can easily be ruled out. The irregular striation marks and the uneven thickness of the walls of the first category indicate perhaps the use, if at all, only of a slow wheel. However, the featureless rims and the almost irregular thickness of the shoulder, neck and rim does suggest that the whole upper part was possibly made in one process by actually folding the clay around the mouth, which was subsequently smoothened. The round bottoms must necessarily have been separately made in some sort of a mould and joined and subsequently enlarged by beating, the traces of which are fairly common.

In the medium sized jars, including the one belonging to the third category, the walls are quite uneven as their sizes precluded the free use of the beating apparatus and the necks and rims are quite obviously luted afterwards; in one case (Fig. 56:8) even the luting on the bottom is evident. The pans, on the other hand, could have been only made by hand in either an improvised mould or else even otherwise; the lug, too, is quite simple and appears to have only been enlarged and pinched up, and not separately attached as a piece of the thick sides.

In the other two categories of finer fabrics the smaller and medium-sized bowls, including even those with a carinated profile, are invariably only handmade. In all the cases where the round bottoms are extant, the thumb depressions on the inside of the base, where the pressure was applied on the clay lump while the palm was busy giving the form and fingers in shaping the outline of the rim, are quite distinct. In the larger specimens, however, the bottoms appear to be hand fashioned perhaps in some sort of a mould; the rims and the sides at least in a few cases (Figs. 60:18-21, 27-28; 61:71) were prepared separately and luted afterwards. The same is the case with the handles of the stud-handled bowls.

In surface treatment the ware, as a whole, shows a high degree of variability. Though as a rule, the vessels of the first category have only mat-surfaces, the neck and shoulder of a medium sized jar (Fig. 59:9) appear to have been pared, and some sort of polishing appears on the surfaces of a pan (Fig.59:13). In the second category of the plain ware of fine fabric, the inner surfaces of the bowls are invariably, but often very indifferently, burnished in the case of smaller ones. The cases having both the surfaces highly burnished and lustrous are exceptionally few and far between (Fig. 60:27,42,44).

In the case of the third category of decorated ware, the reverse is a rule. Here, both the surfaces are burnished. The amount and care taken in burnishing the two surfaces are, however, quite variable; the inner surfaces, prepared to eventually serve as a canvas, are highly burnished and often quite lustrous, while those on the outside are not so carefully executed and often reflect the indifferent attitude of the burnisher/painter.

Except for a couple of small jars, which have a wavy line on their shoulders painted within a double lined horizontal border in white, all the bowls, without exception, have the white painted decorations only on their highly burnished interior surfaces. As the paint was applied on the surfaces rendered quite impervious to water by burnishing, only the negative of the pattern remains and that, too, is visible only to the 'versed eye'.

So far as the patterns themselves are concerned, they present only a restricted range including horizontal groups of short vertical strokes, and groups of radiating arcs, often with dots on either sides; chevrons in a few cases; irregular overlapping loops and dotted patterns are also recorded. In a solitary case, a complete spiral in the bottom with groups of wavy lines hanging from the rim is discovered.

This total tally of the design elements in comparison to the repertoire made available and illustrated from Ahar, is highly restricted, and, in view of the typological comparisons listed elsewhere, seems to present only a poor shadow of its possible prototype, the variegated *Banasian* complex.

This black-and-red ware, or as known outside India, specially in Egypt as the 'Black-topped' ware, is normally supposed to be the end product of the technique of inverted firing. However, the subsequent laboratory and field tests have demonstrated that the ware in Egypt was probably subjected to double firing after an application of carbon over the already burnt red surfaces. The recent analysis of, however, only the late Megalithic Black-and-Red ware which is also true in the case of the much earlier protohistoric black-and-red ware, presently under review, cannot be accepted or denied unless and until the ware is subjected to a detailed analysis. In a recent paper, which has tried to strike a middle path, it has been suggested[1] that the pots were perhaps fired only once in normal conditions with, however, an application of carboneous matter on the surfaces to be rendered eventually black.

However, while leaving the matter of the exact method of firing to the technicians to decide, we endeavour below to point out certain of our observations which may be pertinent to the problem and must be borne in mind while making future laboratory tests and analysis.

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[1] K.M. Srivastava, "The problem of the black-and-red ware in Proto-historic India", *J.O.I.*, XX, No.4, 1971, pp 372-417

Both the double firing technique or the one involving only a single firing entail alike a subsequent application of the carboneous matter. In case of the first method the patterns would necessarily be painted only after the first firing is over and the carbon coat is applied and burnished. But in such a case we are doubtful whether the burnished and fired (and hence double impermeable) surfaces would retain even the negatives that we have; alternatively, if the patterns would have been painted before the first firing, as is probably the case at Surkotada, they would have been totally blocked out by the subsequent carbon coat. From the above it appears that though it is possible to produce a plain Black-and-Red ware like that associated with the Megalithic monuments, the double firing technique seems to be eminently ill-suited for the production of a white painted - invariably on the interior at least - black-and-red ware of Protohistoric India.

Srivastava's suggestion, on the other hand, has the merit of dispensing with a first firing while only applying the carbon-coat prior to burnishing and painting white patterns before the vessels were finally fired. Though not demonstrably proven, it is at least not unreasonable.

However, a few bowls (only two of which are illustrated in Fig. 61:59,68) with fully painted interiors that have only a black patch on their insides, the remaining two surfaces being entirely burnt red or tan, preclude the possibility of the application of a carbon slip. The jetblack colour of the patches shows that, to render the surfaces black such a subsequent application of carbon was not a necessary prerequisite. Again, the blackened surfaces are such a distinctive looking feature that no eye could miss a few leftovers and hence the potters of yore are unlikely to have missed only these few bowls.

The sections, when reduced, are invariably grey and never black; hence the temperature in the kiln can easily be surmised to have been only medium, and never, as recently suggested, low; for the ware, at least the one presently under discussion, does not appear to crumble when kept submerged in water for long.

It, therefore, seems only reasonable and probable, subject however to other evidence on the contrary by which it may be adduced during future tests and analysis, that only the simple technique of inverted firing was adapted to bake this ware. That this suggestion is not incompatible with the evidence seems to become certain from the fact that almost invariably the exterior of the black-and-red ware vessels from Surkotada is red or at the most only smoky and not black at or near the rim. In view of these few observations the conclusion seems to become almost irresistible that the above mentioned bowls are fully red ware and some of the fully black painted white on the interior are due to the vagaries of the kiln and are only those freaks and exceptions that proverbially prove the rule.

DESCRIPTION

1. PERIOD I A

(i) Harappan Ware

Fig. 10

1. A low necked jar with a collared rim and bulbous, fully oxidized body. From the mid level of Period I A.

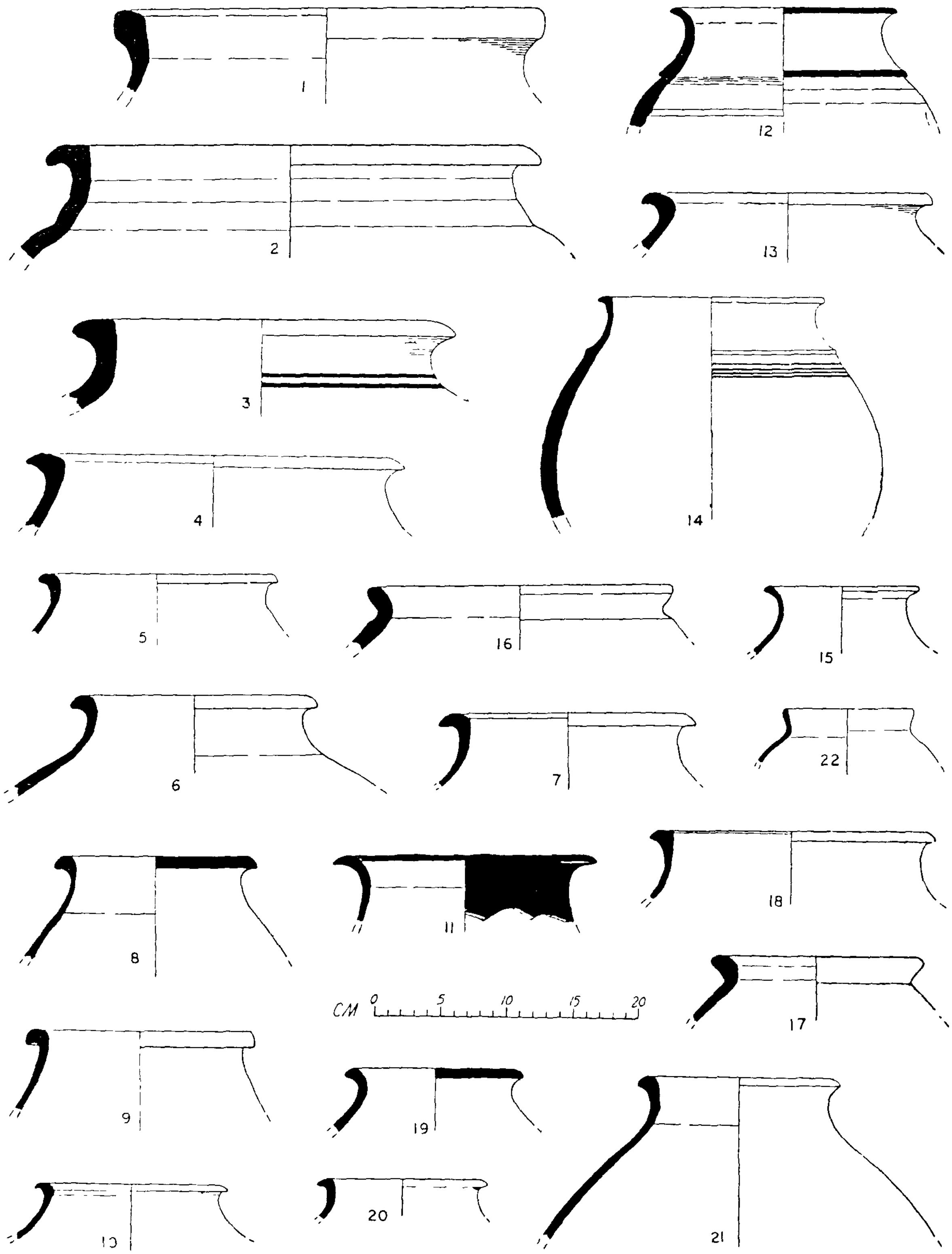


Fig 10. Pottery.

2. A low necked jar with a projected and drooping rim, slightly constricted neck with incipient ribbings and bulbous, fully oxidized body, treated with red slip on the outer surface. From a late level of Period I A.[1]

3. A low necked jar with a beaked rim and a globular oxidized body treated with red slip on the outer surface, bearing two black bands on the shoulder. From a late level of Period I A.

4. A low necked jar with slightly beaked rim, constricted neck and bulbous, fully oxidized body treated with red slip on the outside. From an early level of Period I A.[2]

5. A low necked jar with a beaked rim and bulbous, fully oxidized body. The red slipped outer surface is smoky in colour. From a mid level of Period I A.

6. A low necked jar with beaked rim, constricted neck and globular body. Fully oxidized core, red washed outer surface. From a late level of Period I A.

7. A low necked jar with a beaked rim and a bulbous, fully oxidized body treated on the outside with red wash. From a mid level of Period I A.

8. A low necked jar with beaked rim and bulbous, fully oxidized body and chocolate slipped outer surface bearing a deep chocolate band painted on the rim top. Soot marks on the shoulder region. From a late level of Period I A.[3]

9. An ovaloid jar with a beaked rim, fully oxidized body treated on the outside with red wash. From a late level of Period I A.

10. A low necked jar with a beaked rim, constricted neck and globular, fully oxidized body; a chocolate slip on the outer surface extends over the upper portions of the rim. From an early level of Period I A.[4]

11. A low necked jar with splayed out beaked rim and bulbous oxidized body, treated on the outside with a tan slip which extends over the upper portions of the rim. From an early level of Period I A.

12. A low necked jar with a beaked rim, constricted neck and bulbous body having a ridge formed by a deep groove below at the junction of the neck and the body. Fully oxidized, the outer surface is treated with a red slip. Black bands, one each at the edge of the rim and the ridge, are the only painted decorations, Soot marks appear near the break on the body. From a late level of Period I A.[5]

13. A low necked jar with a splayed out beaked rim, globular oxidized body treated on the outside with red wash. From a mid level of Period I A.

14. A low necked jar with a small beaked rim, constricted neck, a low rib and four

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[1] Khan: 1965, figs. 12 1-5; 15 2, 25-20 (H).

[2] *ibid.*, fig. 20 1 (PH)

[3] Rao: 1962, fig 27 3 (IIB)

[4] *I.A.R.* 61-62, fig. 41.12, Kalibangan.

[5] Casal: 1964, fig 64 217 (ID).

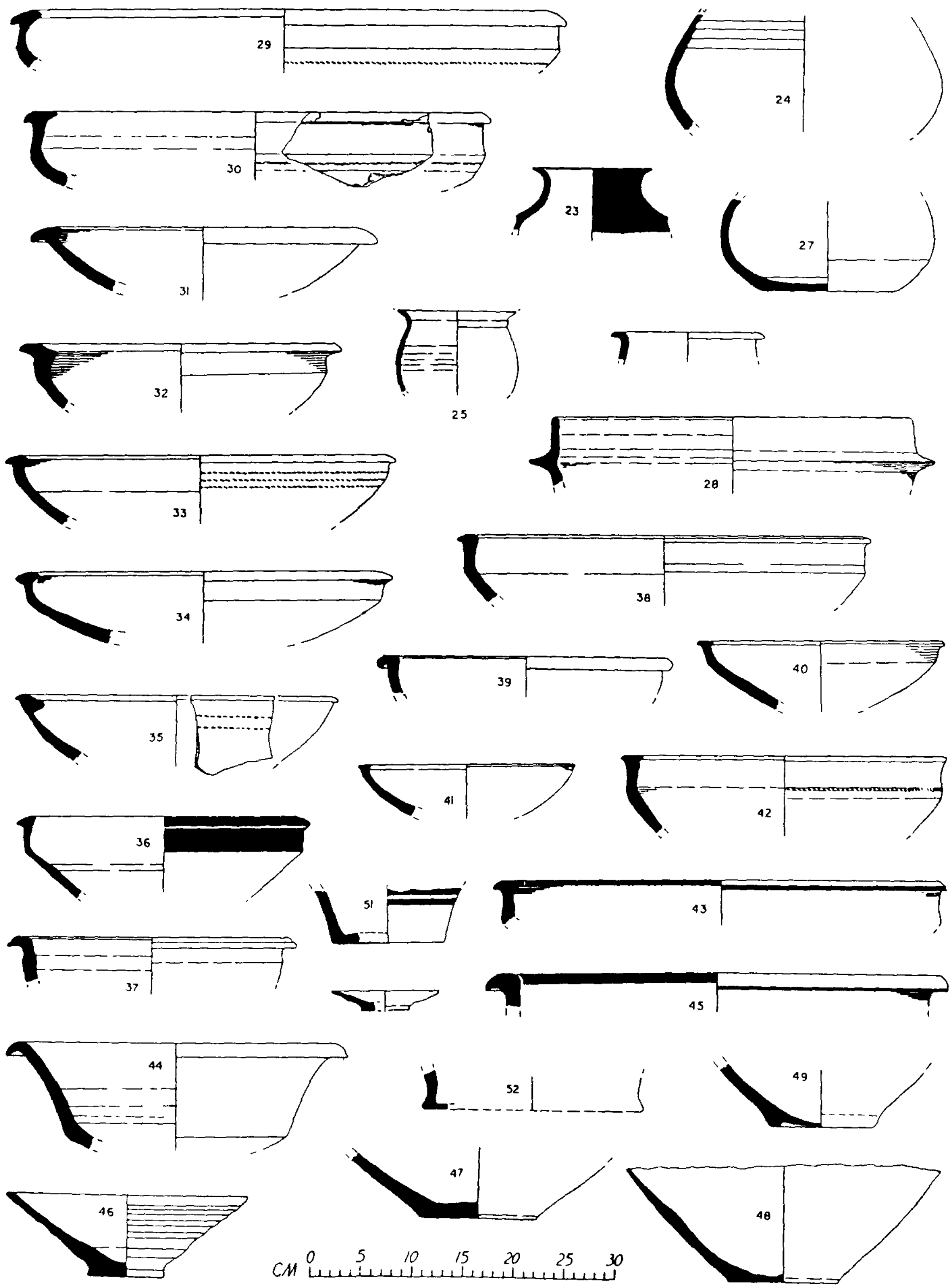


Fig. 11. Pottery.

shallow grooves below on the shoulder and a bulbous body. Though well baked, the core is partly oxidized, the outer half being of smoky tinge and a major part of the red washed surface, too, had turned smoky. From a late level of Period I A.[1]

15. A low necked vessel with a sharp beaked rim, globular, fully oxidized body treated on the outside with red wash. From a late level of Period I A.[2]

16. A neckless vessel with an outturned featureless rim and globular semioxidized body with a roughened outer surface, slightly raised near its junction with the rim, forming a shallow channel. From a late level of Period I A.

17. A neckless vessel with an outturned featureless rim and a globular fully oxidized body treated on the outside with a red wash. From a mid level of Period I A.

18. A low necked jar with a projected and drooping rim, a fully oxidized, bulbous body treated on the outside with a red wash. From a mid level of Period I A.

19. A low necked jar with a slightly beaked rim, constricted neck and fully oxidized globular body treated with a chocolate slip on the outer surface, which extends below the neck on the inside. A narrow deep chocolate band is painted on the edge of the rim. From a mid level of Period I A.

20. A low necked vessel with a beaked rim and fully oxidized bulbous body treated on the outside with a buffish white slip which extends up to the neck on the inside. From an early level of Period I A.

21. A low necked jar with beaked rim, a fully oxidized bulbous body, treated with pinkish white wash on both the surfaces. From a late level of Period I A.

22. A low necked vessel having a featureless rim on oxidized globular body, treated on the outside with red slip extending up to the inner edge of the rim. From a mid level of Period I A.

Fig. 11

23. A low necked jar with a short projected, featureless rim and a ridge at its junction with a fully oxidized globular body, bearing a chocolate slip on the outside above the ridge and covering the flat top of the rim, whose edge bears a band painted in a deeper shade. From, a mid level of Period I A.[3]

24. The middle and lower portions of a sturdy vessel with a flattened base and a fully oxidized globular body bearing on the outside a red wash up to the waist, below which the surface is roughened, perhaps through trimming by a sharp instrument. The type is quite common in the lower levels. From a mild level of Period I A.[4]

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[1] Wheeler: 1947, fig. 23. XLIIIa; Mackay: 1943, Pl. XXVII. 62, 66-7.

[2] Casal: 1964, fig. 80.355a (III B).

[3] Mackay: 1937, Pls. LV.26, LXVI. 20; Marshall:1931, Pls. LXXVIII.4; LXXXVI.22; Stein: 1931, Su.20.

[4] Wheeler: 1947, fig. 17. XIXa.

25. A short necked vessel with splayed out featureless rim, and a fully oxidized globular body bearing tan slip on the outer surface up to the waist. From a late level of Period I A.

26. A short necked vessel with a splayed out beaked rim, a constricted neck and a fully oxidized bulbous body treated with red wash on the outer surface. From a mid level of Period I A.

27. The middle and lower portions of a sturdy jar with a flattened base, fully oxidized globular body bearing a red wash on the outside up to the waist, below which the surface is roughened, perhaps through trimming by a sharp instrument. The type is quite common in the early levels. From a mid level of Period I A.[1]

28. A featureless vertical rim of probably a concave necked sturdy jar having a prominent flange for the lid above the curve of the neck, where a slight indenture occurs on the inner side. Overbaked light chocolate core, treated on the outside with a deep tan slip which extends to the upper half of the rim on the inside. From a mid level of Period I A.[2]

29. A deep basin with a nail headed incurved rim, tapering sides and rounded base, above which is a mild rib. The fully oxidized body is treated with a red wash, on the interior and partly on the exterior surface. Below the ridge on the exterior occurs a cord-impression. The type, however, is quite common in the mid and the early levels. From a late level of Period I A.

30. A deep basin with nail headed rim, vertical sides and rounded base. The fully oxidized body is given a red wash on the interior and partly on the exterior surface where, just below the sides, is a cord impression. From an early level of Period I A.[3]

31. A deep basin with splayed out internally beaked rim, tapering sides and probably a rounded bottom. The fully oxidized body is treated with a red wash on the interior and partly on the exterior. From an early level of Period I A.[4]

32. A deep basin with splayed out internally beaked rim, tapering sides and rounded bottoms, which is roughened through trimming by a sharp instrument. Over baked chocolate body bears a tan wash on the interior and exterior surfaces above the roughening. From an early level of Period I A.[5]

33. A deep basin with splayed out internally beaked rim, tapering sides and rounded bottom. The fully oxidized body is treated on both the surfaces with a red wash. Below the rim occur triple horizontal cord impressions. From a late level of Period I A.[6]

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[1] Wheeler 1947, fig 22., Rao. 1962, fig 19 26

[2] Wheeler 1947, fig. 22 XLI

[3] Khan: 1965, fig 18 6 (PH), Casal 1964, fig 69 273 (IIB)

[4] *Ibid*., fig 79 345 (IIB); Mackay 1937, Pl LXIV. 60, *ibid*., 1943, Pl. XXVII.40; Marshall:1931 Pl LXXXVI 24

[5] Khan 1965, fig. 17.2 (PH).

[6] Mackay 1943, Pl XXVII 47; Casal 1964, fig 79 347 (IIB).

34. A deep basin with nail headed rim, short vertical sides and rounded bottom roughened by the use of a sharp instrument. Well oxidized body bears red wash over both the surfaces. The type, however, is quite common both in the middle and early levels. From a late level of Period I A.[1]

35. A deep basin with nail headed rim, tapering sides and rounded bottom. The core is fully oxidized and both the surfaces bear red slip: on the exterior, below the rim, are double horizontal cord impressions. Though from the upper levels, the type occurs throughout Period I A. From an early level of Period I A.

36. A deep basin with splayed out internally beaked rim, vertical sides and sagging base; the body is fully oxidized and the bottom in the interior is given a tan slip; the rim and the sides on the exterior are treated with a deep tan slip, appearing like a band. The base is trimmed with a sharp instrument. From a mid level of Period I A.

37. A deep basin with a splayed out beaked rim with a shallow groove near the edge, slightly tapering sides and probably a rounded base. Fully oxidized body is treated on both the surfaces with a light red wash. From a mid level of Period I A.[2]

38. A deep basin with a slightly beaked rim, short vertical sides ending in a rounded base; fully oxidized body is treated with light tan wash on both the surfaces. From an early level of Period I A.[3]

39. A deep basin with a projected beaked rim and curving sides ending in a rounded base; fully oxidized body is treated with light tan wash on both the surfaces. From an early level of Period I A.[4]

40. A deep basin with a nail headed rim, slightly outturned sides and rounded bottom. The body is fully oxidized and both the surfaces are treated with a light red wash. From a late level of Period I A.[5]

41. A deep basin with nail headed rim and sides tapering to a rounded bottom. The fully oxidized body bears on the interior surface a light tan wash. From a mid level of Period I A.[6]

42. A deep basin with a nail headed rim, short vertical sides and rounded bottom. The body is fully oxidized and a red wash is given on both the surfaces, though the outer bottom is roughened through trimming by a sharp instrument. From a mid level of Period I A.[7]

43. A deep basin with nail headed rim, short vertical sides and rounded bottom; fully

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[1] Casal:1964 fig. 73.314 (IIIA); Khan:1965, fig. 18.6 (PH).

[2] Rao: 1962, fig 21.43 (IIA)

[3] *ibid.*, fig 21.48; Mackay.1934, Pl. LXI 79; Khan:1965, fig. 18 1, 24 4 (PH)

[4] *ibid.*, fig 18.1 (PH)

[5] Vats 1940, Pl. LXX.9.

[6] Rao:1962, fig 21 48 (IIIA); Khan:1965, fig 24 3 (PH), Mackay. 1943, Pl. XXVII.31.

[7] *ibid.*, Pl. XXVII. 43; Mackay· 1937, Pl. LXI 64; Rao:1962, fig 21.59 (IIA); Khan:1965, fig. 24 4-5, 22.3 (PH)

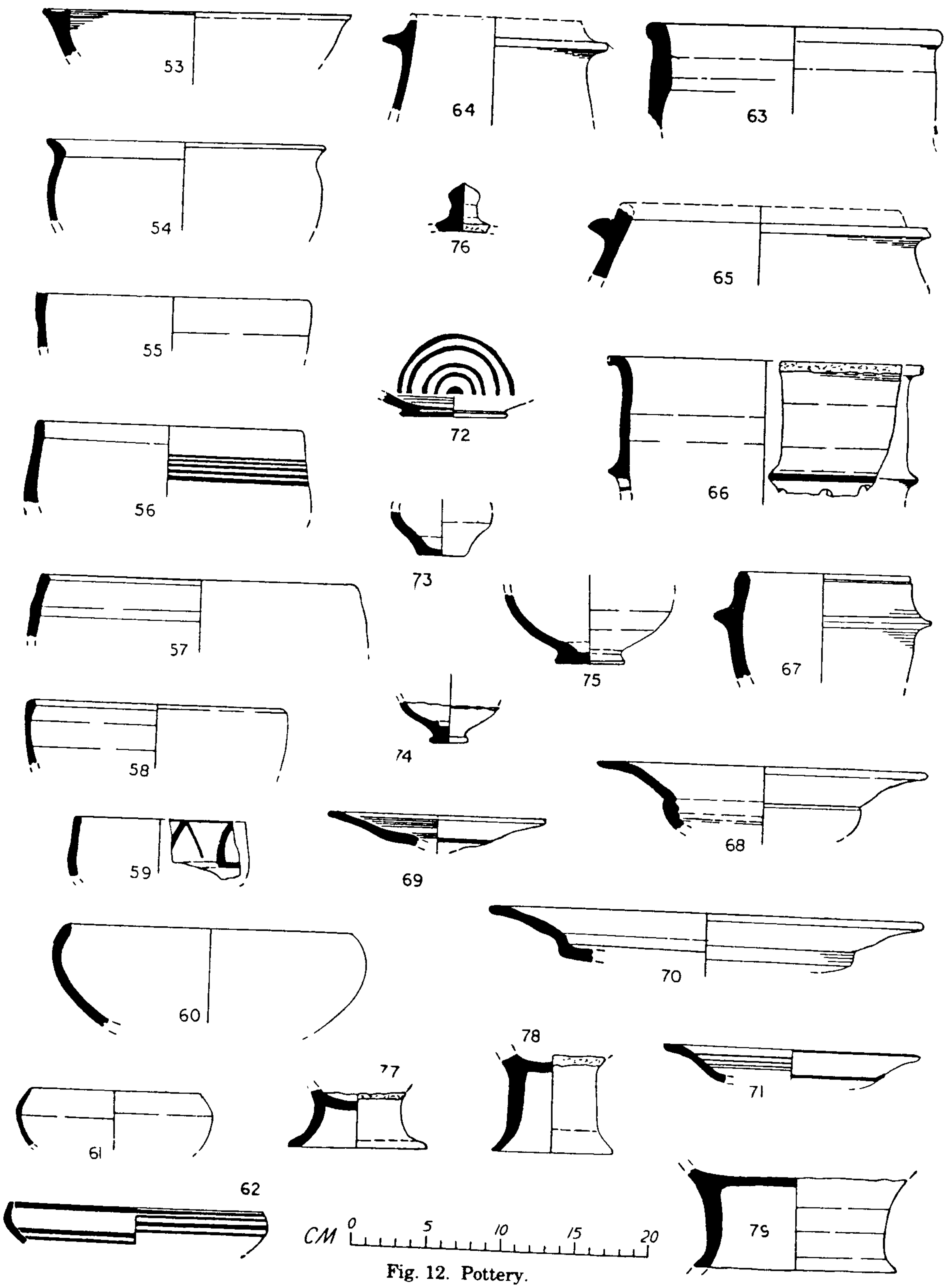


Fig. 12. Pottery.

oxidized; both the surfaces are treated with red slip. The two edges of the rim are given a thin band each in black paint. The type, however, is quite common in both the early and the late levels. From a mid level of Period I A.

44. A deep basin with splayed out beaked rim, slightly outturned high sides and rounded bottom; fully oxidized, both the surfaces are treated with a buff wash. The shape, however, is quite common in both the early and the late levels of Period I A.[1]

45. The projected and drooping rim fragment of a sturdy deep basin. The body is fully oxidized and both the surfaces are treated with deep red slip, over which are painted thick bands on the flat top of the rim extending a little on the inner side and on the drooping edge of the rim. From a mid level of Period I A.

46. A deep basin with featureless rim, tapering sides with wavy profile and string cut narrow, disc base; fully oxidized body is treated on both the surfaces with a thin red wash. Though from the middle levels, the type occurs frequently in all the levels of Period I A. From a mid level of Period I A.[2]

47. A comparable but larger basin with, however, a broader base. Fully oxidized, the surfaces are given a red wash. The outer surface is trimmed with a sharp instrument. From a late level of Period I A.[3]

48. A similar but even larger specimen. The body is fully oxidized and both the surfaces are treated with a red wash. The outer surface appears to have been smoothened after trimming with a sharp instrument. From an early level of Period I A.[4]

49. A rounded base of a deep basin provided with a ring base. Fully oxidized. A red wash is given on both the surfaces. From an early level of Period I A.[5]

50. A miniature basin/lid with a featureless rim, tapering sides and string cut disc base. Core is fully oxidized and both the surfaces are treated with a red wash. From a mid level of Period I A.[6]

51. A deep basin with a slightly tapering sides and string-cut flat base. Fully oxidized body bears on the outside a double horizontal band in black paint over a red wash. The type, however, recurs in both the early as well as the late levels. From the mid-levels of Period I A.[7]

52. A flat base with flaring sides of probably a deep basin. The fully oxidized body

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[1] Casal:1964, fig. 72.309 (IIIA); Mackay: 1937, Pl. LXI. 80; *ibid.* 1943, Pl. XXIV.2.

[2] Mackay: 1937, Pl. LVI. 46; Pl. LXV.3; Marshall: 1931, Pl. LXXXII.28.29; *I.A.R.*, 1963-64, fig. 4.19-Kalibangan; Casal: 1964, fig. 62.201 (ID); Khan: 1965, figs. 22.7, 24.17 (PH).

[3] *ibid.*, fig. 18.15 (PH); Casal: 1964, fig. 38.1 (IA); Wheeler: 1947, fig. 19.XXXIII a-d; Rao: 1962, fig. 21.60 (IIA).

[4] Khan: 1965, fig. 18.15; 17.73 (PH); Casal: 1964, fig. 37.1 (IA).

[5] Decardi 1965, fig. 18.A236 (Anjira IV).

[6] Rao:1962, fig. 23.40.

[7] *ibid.*, fig. 23.83 (IIA); Khan:1965, fig. 26.2 (H); Decardi:1965, fig 18.A28, 233a (Anjira IV); Vats:1940, Pl. LXX.3, 18; Wheeler:1947, fig. 13.Vb, 16.XVIIf.

is, treated on both the surfaces with a light red wash. From a mid-level of Period I A.[1]

Fig. 12

53. A medium sized deep basin with internally beaked, flat rim having a shallow groove on the top near the outer edge, tapering sides and rounded base. Well oxidized, the surfaces are treated with a light red wash From a mid-level of Period I A.[2]

54. A convex sided bowl with splayed out internally beaked rim and rounded base. Well oxidized, the surfaces are treated with a dull tan wash. From a mid level of Period I A.

55. A straight sided bowl with a featureless flat rim and probably a rounded base. Fully oxidized, the surfaces are given a red wash. From a mid level of Period I A.[2]

56. A straight sided bowl with a featureless rim and possibly a rounded base. Fully oxidized, the surfaces are treated with deep red wash over which are painted five thin black bands on the outside, a little below the rim. From an early level of Period I A.[4]

57. A straight sided bowl with a flat rim and rounded base. Fully oxidized, the surfaces are treated with red wash. From a mid level of Period I A.

58. A straight sided bowl with an internally thickened rim and rounded base. Well oxidized, the surfaces are treated with a light tan slip. From an early level of Period I A.

59. A Straight sided bowl with a featureless rim and rounded base; the body is semioxidized, the core having a buffish-streak in the middle. The outer surfaces and part of the inner near the rim are treated with a light red slip. Two horizontal black bands are painted on the rim, the intervening space a little below being filled with hollow triangles with curved sides. From an early level of Period I A.[5]

60. A deep bowl with incurved featureless rim, tapering sides and rounded bottom. A semioxidized body with a buffish core. Both the surfaces are given a red wash, which has burnt, at places, red, yellow or tan. From a late level of Period I A.[6]

61. A small deep bowl with incurved featureless rim, tapering sides and rounded bottom. The overfired body has brown core. The surfaces are treated with a chocolate wash. From an early level of Period I A.[7]

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[1] Wheeler: 1947, fig. 19. XXXVIa, XXXVII.

[2] Khan:1965, figs. 17.1; 22.5 (PH).

[3] *ibid* fig. 1965, 21.21 (PH); *I.A.R.*, 1962-63, fig. 5 12-Kalibangan.

[4] Khan 1965, fig. 22.24 (PH).

[5] Stein.1931, Pl. I.TZ.12, SN.13.

[6] Khan·1965, fig. 24.8, 19 10; (PH); Mackay: 1937, Pl. LVI.50.

[7] Casal.1964, fig. 79.351 (IIIB).

62. A medium sized deep bowl with slightly featureless rim, tapering sides and rounded bottom. Fully oxidized, the surfaces are treated with a red wash over which four bands are painted in black on the exterior, one on the top and inside of the rim and slightly thicker bands on the inner bottom of the bowl. From a mid level of Period I A.

63. An internally thickened neck fragment of perhaps an ovaloid jar with a beaded rim, fully oxidized body having the surfaces treated with light red wash. From a mid level of Period I A.[1]

64. A prominently flanged rim fragment of a medium sized ovaloid jar with a semioxidized body having a light brown core. Inside is treated with a red wash; on the outerside much damaged traces of a dark tan slip or band remain only on the flange. From a mid level of Period I A.[2]

65. A prominently flanged rim fragment of a medium sized but sturdy ovaloid jar with a fully oxidized body. The two surfaces are treated with a red wash. From an early level of Period I A.[3]

66. A straight sided neck fragment of a perforated jar with a short projected rim and a sharp ridge, below which occur the perforations. A fully oxidized body treated on the outside with a light tan wash over which the ridge is decorated with a band painted in black. From an early level of Period I A.[4]

67. Fragment of probably a straight sided, round bottomed bowl with a featureless, internally thickened rim and a short flange a little below it. The fully oxidized body is treated on the outside with a deep tan slip. From an early level of Period I A.[5]

68. A deep dish with splayed out rim and semicircular bottom, having a deep groove on the outside at the junction of the two. The fully oxidized body having its surfaces treated with a thin red wash. From an early level of Period I A.[6]

69. A shallow dish with a splayedout rim, sagging base and oxidized body having the surfaces treated with red wash over which are painted concentric bands in black on the interior and a band on the outside at the junction of their rim and the base. From an early level of Period I A.[7]

70. A shallow dish with a splayed out rim and an almost flat base, fully oxidized body with the surfaces treated with deep tan slip. From a mid level of Period I A.[8]

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[1] Casal: 1964, fig. 44.51 (IA); Khan:1965, fig. 24.9 (PH); Rao:1962, fig. 18.21.

[2] *ibid.*, fig. 15.14 (PH), fig. 27.15 (IIB); Casal:1964, fig. 81.362 (IIIB).

[3] Khan:1965, figs. 13.6, 21.18 (PH).

[4] *ibid.*, fig. 12.21 (H).

[5] *ibid.*, fig. 24.10 (PH)

[6] *ibid.*, fig. 24.7, 22.10 (PH).

[7] Rao:1962, fig 22.67 t.

[8] *ibid.*, fig. 22.67a (IIA); Mackay:1943, Pl. XXVI-1, Casal:1964, fig. 72.308 (IIIA), *I.A.R.*, 1963-64, fig. 6.35-Kalibangan; Wheeler:1947, fig. II.I.



Fig. 13. Pottery.

71. A shallow dish with a splayed out rim and a slightly curved flattish base with a fully oxidized body having the two surfaces treated with a red wash over which are painted black concentric bands on the interior and a band on the outside at the junction of the rim and the base. From a mid-level of Period I A.[1]

72. A string cut disc base. The fully oxidized body is treated with deep red slip on the inside, over which are painted concentric circles in black. From an early level of Period I A.

73. A flat base, probably string cut, of a small goblet with a fully oxidized body and encrusted surfaces. From an early level of Period I A.[2]

74. A string cut disc base of a small goblet with a fully oxidized bulbous body, having the outer surface treated with dull whitish wash. From a mid level of Period I A.[3]

75. A string cut disc base of a bigger sized goblet with a fully oxidized bulbous body having the outer surface treated with a deep tan slip. The type, however, is quite common in the early and the middle levels. From a late level of Period I A.[4]

76. A conical domed central knob of a lid with a flat string-cut, oxidized base treated with a dull red wash. The type is, however, well represented in the lower as well as the middle levels of the period. From a late level of Period I A.[5]

77. A splayed out squat stand of a fully oxidized dish or bowl. The surfaces are treated with a red wash. From a late level of Period I A.[6]

78. Almost cylindrical squat stand of a dish or bowl. The fully oxidized body has the surface encrusted. From a late level of Period I A.[7]

79. A splayed out squat stand of a dish. Fully oxidized body with the surfaces treated with a red wash. The type, however, occurs sporadically in the lower as well as in the upper levels. From a mid level of Period I A.[8]

Fig. 13 [Pl. XXXVI]

80. A wide mouthed sturdy storage jar with slightly inturned externally beaked rim, mildly ribbed shoulders and sloping sides, showing a weak carination at the junction with

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[1] Rao:1962, fig. 22 67c.

[2] Wheeler.1947, fig. 17.XXIV.

[3] *ibid.*, fig. 13.IIId.

[4] *ibid.*, figs. 13.IIIC; 17.XXIIb.

[5] Khan:1965, fig. 12.9 (H); Casal:1964, fig. 81.365a (IIIB); Mackay:1937, Pls. LVI.48; LXII.1,2, Marshall:1931, Pl. LXXXII, 40-41.

[6] Khan:1965, fig. 22.14-17 (PH); Mackay:1943, Pl. XXV-II; Casal:1964, figs. 39.10b (IA); 48.82 (IB); Wheeler:1947, fig. 18.XXVIIIb.

[7] *ibid.*, fig. 18.XXVIII.C; Mackay:1943, Pl XXV.28; Casal:1964, fig. 62.203 (ID).

[8] Khan: 1965, fig. 15.17 (H).

the shoulder. The body is fully oxidized. The exterior surface is treated with a red wash over which are painted black bands at the beak of the rim and palm-frondes and obliquely hatched leaves on the shoulder. From a late level of Period I A.[1]

81. A fragment of a sloping portion of probably a comparable vessel with a fully oxidized body. The outer surface bears a red slip which has turned chocolate in parts over which are painted palm-frondes in black. From an early level of Period I A [Pl. XXXVI, 8].

82. A small sherd of probably a similar vessel with a fully oxidized body, painted with palm-frondes in black over the outer surface treated with a red wash. From a mid level of Period I A.[2]

83. A mildly concave portion of a vessel with a fully oxidized body treated externally with a tan slip over which is painted a tree in black with horizontally spreading branch having pinnate leaves on both the sides, interspersed with the 'Sun' motif with a central dot. Separated by a thin band below is a panel of vacant circular spaces filled in with 'Sun' devices. From a mid level of Period I A[3] [Pl.XXXVI,1].

84. The sloping body fragment of a bulbous, fully oxidized jar. The upper half of the exterior surface is treated with a thin red slip over which are painted in black pinnate leaves, below which are double bands separating the triangularly arranged dots and dashes. From an early level of Period I A[4] [Pl. XXXVI, 5].

85. A fragment of an almost vertical sided sturdy jar with a fully oxidized body treated on the outside with a thin red slip over which are painted in deep red a couple of stylized stags with solid extremities and cross hatched bodies, surrounded by a number of obliquely hatched birds. Separated by a thin band is a panel of vacant circular spaces filled in with 'Sun' devices with a central dot. From a mid level of Period I A [Pl. XXXVI, 3].

86. The upper portion of a small bulbous jar with a fully oxidized body having the outer surface treated with a thin red slip over which is painted a bird in black ('Peacock'?) with a cross hatched body. From a late level of Period I A[5] [Pl. XXXVI, 2].

87. The fragment from the upper part of a small jar with a fully oxidized body; the upper surface is treated with a deep red slip over which is painted an obliquely hatched leaf in black on the tip of which is perched a bird, the cross-hatched hind portion of which is only extant. From a late level of Period I A [Pl. XXXVI, 4].

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[1] Khan 1965, fig. 89.437 (IIIC); Marshall : 1931, Pl. LCI.31 ; Mackay 1943, Pls XXV 12; XXXXI 17; XXXIV 9, XXXXII.17

[2] Mackay 1937, Pls LXVIII 18; LXXXIX 11, LXX 25

[3] Khan 1965, fig XV.1; N.G Majumdar, 'Explorations in Sind.' *M A S I*, No 48, Pl XXVI.10-Ghazishah

[4] *ibid*., Pl XXII 18-Ghazishah, 29- Chanhudaro, A Stein, An Archaeological Tour in Waziristan and Northern Baluchistan, *M A.S I*, No. 37 (1929), Pl XIV D 18; *I A.R.*, 1960-61, Pl XLV A-Kalibangan; Mackay 1943, Pl XXXI 21

[5] *ibid*., Pl XXXVII.13

88. A fragment from the upper part of a small jar with a fully oxidized body, the upper surface of which bears a thin deep red slip over which are painted in black intersecting circles. The triangular spaces are filled in with dashes and the central squarish spaces contain a 'Sun' device with a central dot. From a late level of Period I A.[1]

89. The fragment of a small jar with fully oxidized globular-body; the upper surface is treated with a thin red slip over which are painted five bands in black below which are intersecting circles with dashes in the lenticular and dots in the squarish spaces. From a late level of Period I A[2] [Pl. XXXVI, 6].

90. The fragment of a medium sized semioxidized globular jar; only a third part of the core is reddish, the rest being blackish. The upper surface is treated with a thin deep red slip over which are black intersecting circles with dashes within the lenticular spaces formed thereby. From a late level of Period I A[3] [Pl. XXXVI,7].

91. A fragment of a sturdy, fully oxidized storage jar. The outer surface is treated with a thin red wash over which are painted irregularly drawn intersecting circles in red having a hatched 'fish' device in the lenticular and a 'Sun' motif with a central dot in the squarish spaces. From a late level of Period I A.[4]

92. The fragment of a large, partially oxidized storage jar; its core has remained buff. The upper surface is treated with a deep red slip over which are painted hanging 'pipal' leaves in black with obliquely hatched fillings. From an early level of Period I A.[5]

93. A fragment of the upper part of a sturdy storage jar; the fully oxidized body has its surfaces treated with a dull red wash, over which thick horizontal bands in black on the exterior are painted. From the bands, dots-and-dashes, sometimes arranged triangularly, are suspended. From a mid level of Period I A.[6]

94. A fragment of a bulbous, fully oxidized storage jar; the outer surface is treated with a reddish brown slip over which is painted a vertical column in black, the upper half of which is cross hatched, the rest having hanging loops filled in with dots. From an early level of Period I A.[7]

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[1] Marshall: 1931, Pl LXXXVIII 9; Majumdar 1934, Pls XV 25-Jhukar, XX 14-Chanhudaro.

[2] Mackay 1943, Pl. XXXVII.34a; Marshall.1931, Pl. LXXXVIII.10, Wheeler.1947, fig. 10.39; Khan:1965, fig. XVI; Stein 1929, fig. XIV.D 5,24; XV D 66; *I.A.R.*, 1960-61, Pl. XLV.A-Kalibangan

[3] Mackay:1937, Pls. LIV 5, LXIX.30, Marshall:1931, Pl LXXXIX 3.

[4] *ibid.*, Pl. LXXXVII 12; Mackay:1943, Pls. XXX.II, 17.22; XXIII.4; *ibid*:1937, Pl LXIX,8, Majumdar:1934, Pl. XX.22-Chanhudaro XXVI 27-Ghazishah, Vats:1940, Pl LXVII 27; Stein:1929, Pls. XIV.D.2; XV D.58; *I.A.R.*, 1961-62, Pl XLV A-Kalibangan, Wheeler:1965, fig XLIV 1, Khan: 1965, fig. XVI; Casal 1964, fig. 78 340 (IIIA).

[5] *ibid.*, fig. 76.333 (IIIA), Mackay 1943, Pl. XXXI 2-3

[6] Mackay:1937, Pl XXXI.20, Casal 1964, fig 78.330, 344 (IIIA), Majumdar 1934, Pl. XXVIII 16, Pandiwahi; Khan: 1965, Pl. XX.13, Stein:1929, Pl XIV.D17; Fairservis:1959, fig. 48.p.Periano painted.

[7] Macky:1943, Pl. XXIII.6; Casal 1964, fig 96.536 (IIID); Marshall: 1931, Pls. LXXXVII; LCI.32; Wheeler:1947, fig. XLIII.8

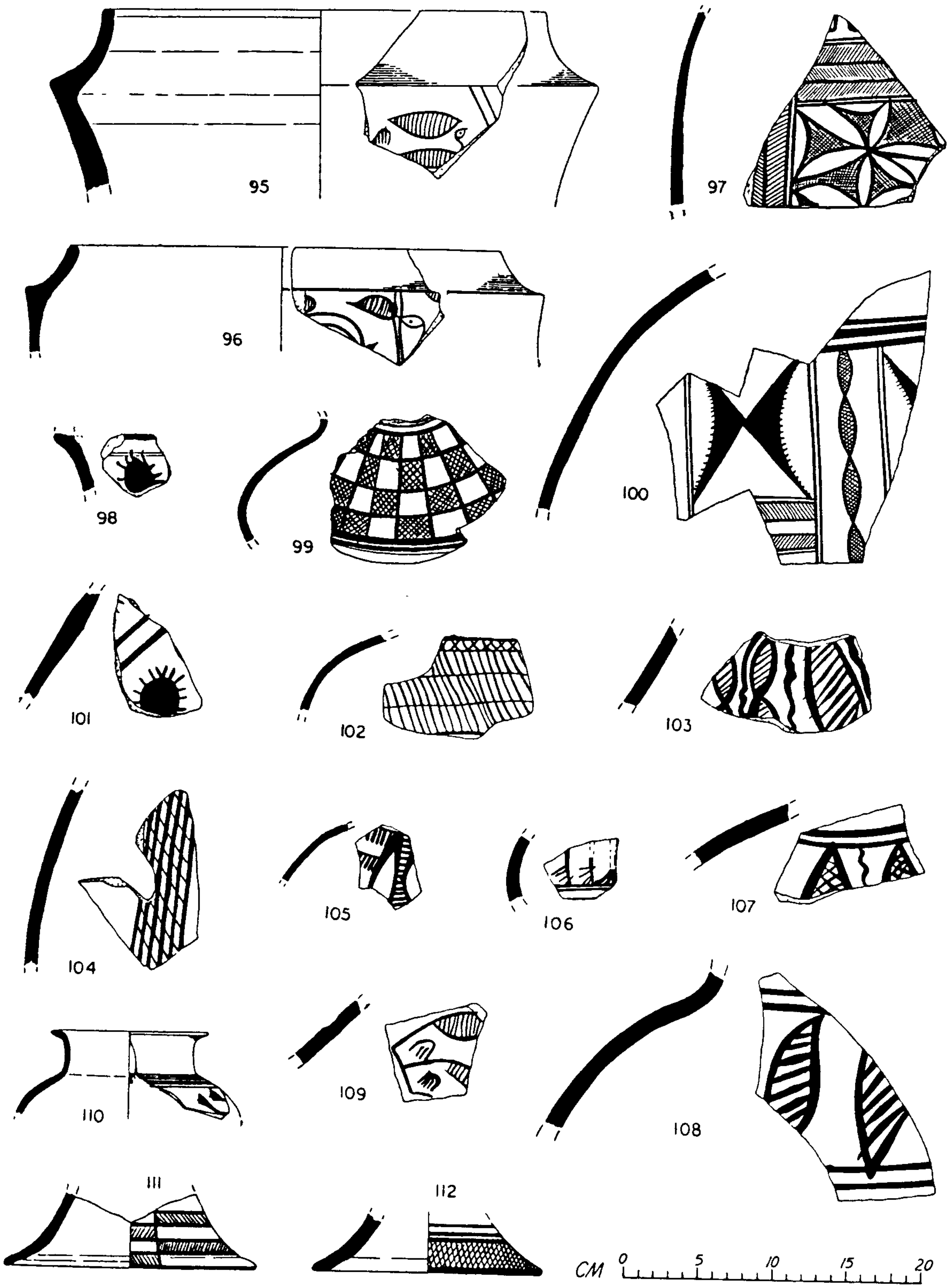


Fig 14 Pottery.

Fig. 14

95. A pronouncedly flanged rim fragment of a large, fully oxidized storage jar, the outer surface of which is treated with a light tan slip. Below the flange are painted in red a leaf and a bird with bodies filled in with oblique strokes. From a late level of Period I A.[1]

96. A similar sherd, fully oxidized and treated with a deep red slip. The landscape motif, painted in black, includes a thin band on the flanges and pinnate leaves being pecked by a bird. From a late level of Period I A.

97. The body sherd of a bulbous vessel. Fully oxidized, the outer surface is given a deep red slip over which is painted a black panel of concave sided triangles bordered with multiple bands filled in with oblique lines slanting in alternate directions. From an early level of Period I A.[2]

98. A fragment of a medium sized fully oxidized jar with a flanged rim. The outer surface is given a light red thin wash over which is painted a thick band in black on the flange and below a 'Sun' motif with a solid dot having multiple rays emanating from it. From a late level of Period I A.[3]

99. A fragment of a jar with a fully oxidized bulging body, treated on the outside with a thin red slip, over which is painted in black a chequer board pattern with cross hatched rectangles alternating with open spaces. From an early level of Period I A.[4]

100. A fragment of a fully oxidized bulbous jar, treated with a bright red slip on the outside. Over it is painted in black a pattern consisting of triangles with concave tooth based triangles put sideways above multiple bands filled in with oblique lines slanting in opposite directions. These vertical panels are spaced by a hanging rope pattern filled in by slanting lines and hemmed on the other side by double vertical hands. On the top the whole pattern is enclosed by a triple horizontal band. From a late levèl of Period I A.[5]

101. A fragment of well oxidized sturdy jar having a red slip on the exterior surface over which are two oblique bands coupled with a 'Sun' motif with a solid dot and emanating rays. From a late level of Period I A.[6]

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[1] Mackay:1943, Pl. XXIII.6; Casal:1964, fig 81.350 (IIIB); Majumdar, 1934, Pl. XXVI. 2 Ghazishah; Khan:1964, fig. 12.18, 14.5 (H); Stein.1929, Pl XI MM N. 24, 27, 40.

[2] Macky 1943, Pl. XLVI.B Jhukar; Casal: 1964, figs. 49.92 (IB); 72.303 (IIB); 96.535 (IIID); Majumdar:1934, Pl XVI 20 Jhukar. Fairservis 1956, Nos 296/250 Quette ware.

[3] Casal:1964, fig 86.417 a (IIIC); De Cardi:1965, fig. 10.23 Togau ware; Majumdar:1934, Pl. XXVIII.26 Pandiwahi; Stein:1936, Pl XXI.2,XXIII.11.

[4] Fairservis 1959, Nos 396, 117-19 Jangal painted; Stein:1931, Pl. IV Pan I; De Cardi:1970, fig. 17.21 (I).

[5] Marshall:1931, Pl XCIII.8 N; Fairservis:1959, Nos. 405.219-20, Periano painted; *ibid*: 1961, fig. 106/34 Gardan Reg; Stein 1931, Pl III.J D I

[6] Casal. 1964, fig. 86.417 a (IIIC), De Cardi.1965, fig. 10.23 Togau ware; Majumdar:1934, Pl. XXVIII, 26 Pandiwahi; Stein 1936, Pls XXI.2, XXIII 11.

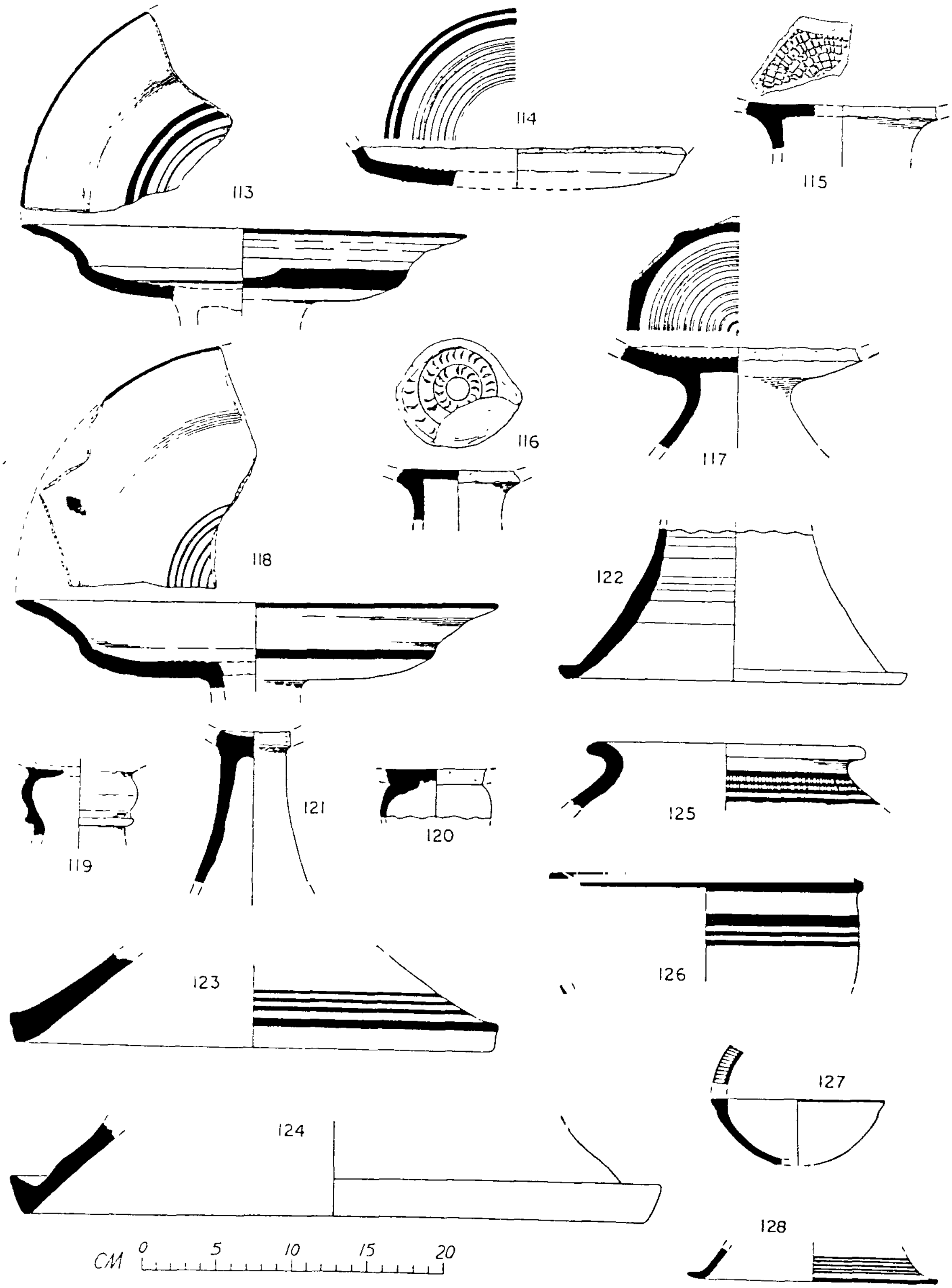


Fig 15 Pottery

102. A fragment of a well oxidized globular jar treated on the outside with a thin red slip. On it are painted spaced horizontal bands in black cut by close slanting lines. From a late level of Period I A.[1]

103. Upper fragment of perhaps an ovaloid storage jar having fully oxidized body with a red slipped upper surface bearing painted patterns in black comprising vertically placed 'double eye' motif filled in by oblique strokes. In between is a wavy line and beyond another wavy line is a bigger but similar motif. From a late level of Period I A[2]

104. A body sherd which is fully oxidized and bears a red slip over which is painted a pattern comprising of six vertical bands cut by slanting lines. From a late level of Period I A.

105. A fragment of a globular vessel. Well oxidized body is treated on the outside with a deep red slip. The pattern comprises remnants perhaps of palm-frondes and an hourglass sectioned space filled in by horizontal bands. From a late level of Period I A.[3]

106. A fragment of a globular vessel. Well oxidized body is treated with a deep red slip. The pattern painted in black, though much spaced, comprises of a couple of horizontal bands over which are spaced columns cut by about four slanting strokes near the corner extremities. From a mid level of Period I A.

107. The upper part of vessel. Well oxidized body bears on the upper surface a red slip over which are painted in black cross hatched objects with a wavy band in between hanging from a double horizontal band. From a late level of Period I A.[4]

108. The shoulder fragment of a bulbous well oxidized jar treated on the outer surface with a deep red slip. On it are painted within double black bands, two vertically placed 'eye' motifs, which are filled in with slanting lines. From a mid level of Period I A.[5]

109. A well oxidized red slipped sherd bearing on the outside a branch from which emanate a couple of leaves. From a mid-level of Period I A.

110. A low necked globular jar with a short projected rim, well oxidized body having the outer surface treated with a red slip over which are painted in black multiple bands on the shoulder, below which occur frayed-edged toddy leaves. From a mid level of Period I A.

111. Base portion of dish or bowl-on-stand. Well oxidized body is treated on the outer surface with a deep red slip over which are painted displaced horizontal bands filled in with slanting lines. From a late level of Period I A.[6]

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[1] Mackay:1937, Pl. LXIIX.14

[2] Casal.1964, fig. 74 316 (IIIA); *I A R*, 1956-57, Pl XIII A. 17-Lothal

[3] Majumdar: 1934, Pl XXIII3 Lohumjodaro

[4] Mackay: 1943, Pl. XXXVII.30,36; *ibid* 1937, Pl. LXX 22

[5] *ibid*, Pl XXVI.29 Ghazishah; Marshall 1931, Pl XCII.2; Casal: 1964, fig. 57 166 (IC) De Cardi. 1970, fig. 37.117 (V 2).

[6] Mackay:1937, Pl. LXX.16; Marshall 1931, Pls LXXXVIII, 4; LCI 31.

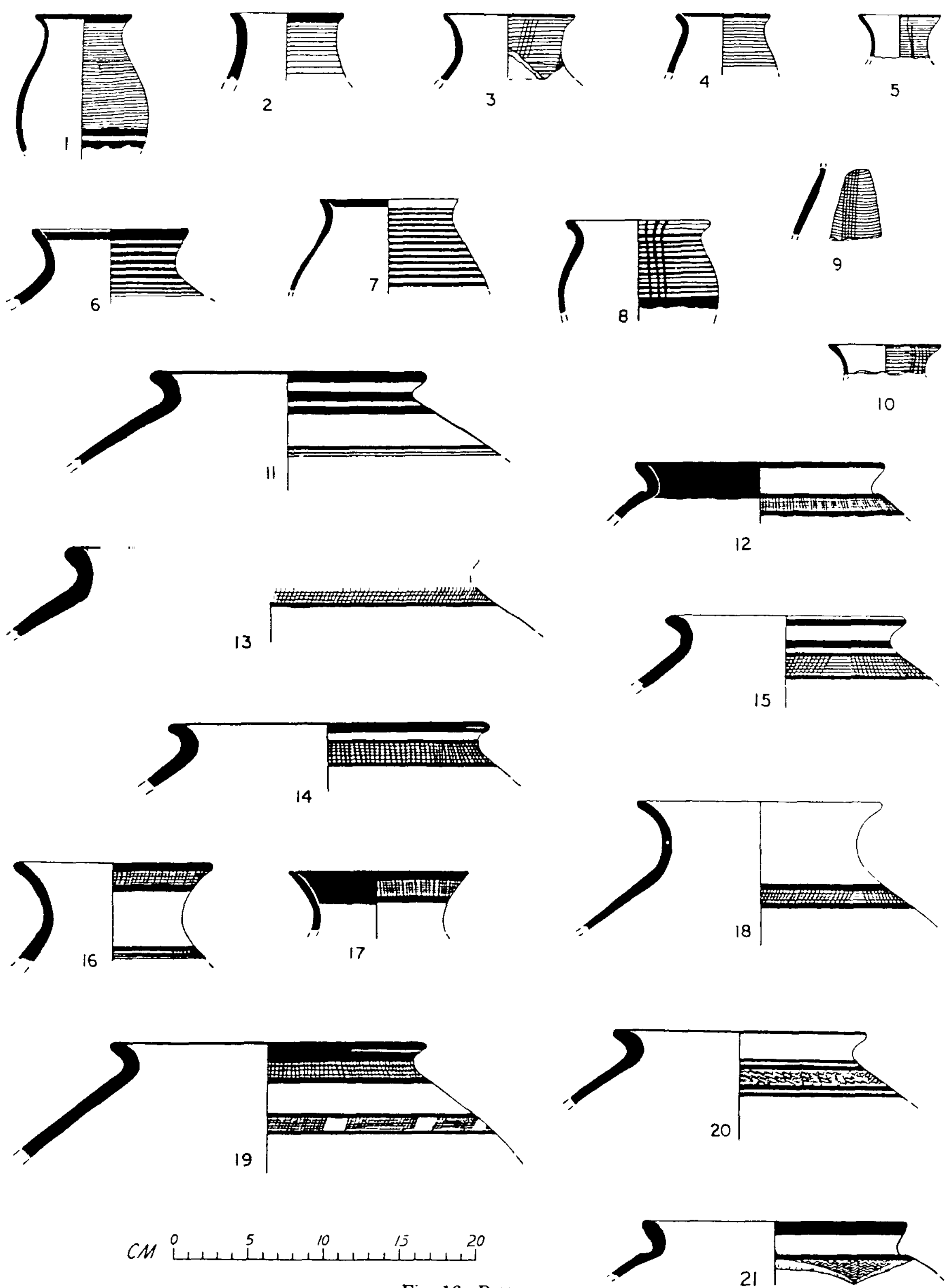


Fig. 16. Pottery.

112. Base part of a dish or bowl-on-stand. Well oxidized body is treated on the upper surface with a red slip over which is painted a black mesh-pattern within bands. From an early level of Period I A.[1]

Fig. 15

113. A flat dish having a number of shallow concentric grooves in the bottom, with splayed-out sides and a featureless rim; probably the part of a dish-on-stand. Fully oxidized, both the surfaces are treated with a thin deep red slip over which are painted black bands, two beyond the grooves on the interior and one at the junction of the sides and the base on the outside. From a mid level of Period I A.[2]

114. A flat dish-on-stand having a number of shallow concentric grooves in the bottom. Fully oxidized body is treated, save for the inner bottom, with a red slip, over which are a couple of concentric black bands on the inner periphery of the base. From an early level of Period I A.[3]

115. A flat dish on a cylindrical stand. The bottom of the dish bears incised circles which are intersected by radiating lines. Fully oxidized and treated only on the exterior with a red wash. From an early level of Period I A.[4]

116. A flat dish on cylindrical stand. The inner bottom is decorated with three concentric bands of nail impressions. Semioxidized body, at places the core as well as the red slipped surface has turned dark brown. From a late level of Period I A.[5]

117. A flat dish on a splayed-out squattish stand, decorated on the interior with multiple, concentric grooves. Fully oxidized, the outer surface is treated with a dark tan slip and on the interior there is a dot in the middle and a band on edge of the bottom in the same colour. From a late level of Period I A.[6]

118. A large splayed sided dish with a featureless rim and an almost flat base on a cylindrical stand. The middle of the bottom has multiple concentric grooves. Fully oxidized, the inner surface beyond the grooves and the outer surface is treated with a red slip over which, on the outside, at the junction of the base and the sides, is a thick black band. From a mid level of Period I A.[7]

119. A bulbous head, with a pronounced rib below, of a stem of a dish-on-stand. Fully oxidized, the outer surface bears a dark tan slip. From a mid-level of Period I A.[8]

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[1] Khan.1965, fig 14 19 (H)

[2] Casal·1964, fig 72 307 (IIIA); Vats 1940, Pl LXX 11,Rao:1962, fig 22 67b

[3] Mjumdar 1934, Pl XXXI 14 Jhangar; I A R, 1963-64, fig 6 35 Kalibangan

[4] Mackay:1943, Pl. XXXVIII 14,16

[5] Khan: 1965, fig 15 17 (H); Mackay.1943, Pl XXXVIII 25; Majumdar 1934, Pl XXXVI 9,10 Jhangar

[6] *ibid*, Pl. XXXI,14 Jhangar, Khan:1965, fig 24 13, 22 22, 16 (PH), Rao, fig 23 73.

[7] Marshall 1931, Pl LXXIX 12.

[8] *ibid*, Pls LXXVIII 14; LXXIX 21;23, Stein·1931, fig V Su Ic b l a

120. A bulbous head of a stem of a flat dish-on-stand. Fully oxidized, the surface is treated with a bright red slip over which is given a black dot in the centre of the bottom of the dish. From a late level of Period I A.[1]

121. An almost cylindrical stem with a splayed base of a flat dish-on-stand. Fully oxidized, the surface bears a tan slip. From a late level of Period I A.[2]

122. A flaring base with upturned edge of a squattish dish-on-stand. Well oxidized, the surface is treated with a dark tan slip. From a late level of Period I A.

123. A flaring broad base with a vertical edge of a dish-on-stand. Fully oxidized, the surface is treated with a red slip, over which are painted black bands on the edge of the base and above. From a late level of Period I A.[3]

124. A flaring broad base of a dish-on-stand with a sharp raised edge. Fully oxidized, both the surfaces are treated with a red slip. From a late level of Period I A.[4]

125. A low necked jar with splayed out featureless rim and bulbous body. A well fired buff ware with a dark brown slip over which is painted in dark brown a mesh pattern bordered by thick bands. From a late level of Period I A.

126. A short collared rim of a deep convex sided basin in buff ware. Well fired, it is treated on the outside with a light brown slip over which multiple horizontal bands are painted in dark brown. From a late level of Period I A.[5]

127. A rounded-bottomed small bowl with tapering sides and a slightly pinched rim with raised internal edge in buff ware. Well fired, the surfaces are treated with a thin brown slip over which, on the rim, is painted a band filled in with oblique strokes in dark brown. From an early level of Period I A.

128. A splayed out base with a featureless edge of a dish-on-stand. Fully oxidized, the surfaces are treated with a red slip over which are painted multiple bands in black. From a late level of Period I A.

(ii) Polytone Cream slipped Ware

Fig. 16

1. A concave necked, small ovaloid vessel with a featureless rim. Fully oxidized, the outer surface from the rim down to a little below the waist is treated with a creamy white slip. Over it are slender horizontal lines bordered by thick bands, one at the rim and two below the slip. From a late level of Period I A.

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[1] Mackay 1937 Pls LXV 35 LII 29, LV 11, *ibid* 1943, Pl XXV 16, Casal 1964, fig 80 353 (IIIB)

[2] *ibid*, fig 73 314 a (IIIA), Marshall 1931 Pl LXXIX 17, Khan 1965, fig 22 23 (PH), Wheeler 1947, fig 11 (b)

[3] *ibid*, fig 11 1 c, Mackay 1943, Pl XXV 29, Rao 1962, fig 23 72 a, 75

[4] *ibid* fig 23 72 b

[5] *ibid*, fig 20 34 a

2. But for the thicker section and consequently a larger body, the sherd is almost an exact replica of the one just above. From a late level of Period I A.

3. A concave necked small ovaloid vessel with a featureless rim. Fully oxidized, the upper surface is treated with a thick cream slip over which are drawn multiple horizontal lines in black, intersected at intervals by a group of four vertical dashes. From a mid level of Period I A.

4. A low necked small vessel with outturned featureless rim. Fully oxidized, the outer surface bears a cream slip over which is painted a thick band on the rim and multiple, slender horizontal lines below it in black. From an early level of Period I A.

5. A concave-necked small ovaloid vessel with a featureless rim. Well oxidized, the outer surface is treated with a cream slip over which are painted black horizontal bands, a thick one at the rim and thinner ones below it, the whole group being bisected by a vertical line drawn across it. From a late level of period I A.

6. A concave necked globular vessel, the inner edge of the rim of which is given a black band and the outer cream slipped surface bears multiple horizontal bands. From a late level of Period I A.

7. A concave necked, small globular vessel with a featureless rim. Well oxidized, the inner edge of the rim bears a deep red band and the outer creamy white slipped surface has multiple horizontal bands drawn in red. From an early level of Period I A.

8. A low necked vessel with a short outturned featureless rim. Well oxidized, the outer surface is treated with creamy white slip over which are painted multiple horizontal bands in dark brown with three vertical bands drawn across. From a mid level of Period I A.

9. The fragment of a small ovaloid vessel with fully oxidized body. The outer surface is treated with a cream slip over which are drawn multiple horizontal bands in dark brown and a vertical column of five bands in the same colour. From an early level of Period I A.

10. A concave neck of a small globular vessel with a featureless rim. Well oxidized, the inner edge of the rim and the cream slipped outer surface bear multiple bands in dark brown; across them stands a column of six vertical lines in the same colour. From an early level of Period I A.

11. A low necked wide mouthed jar with a short out-turned rim. Fully oxidized, the outer surface, treated with a cream slip, bears horizontal bands in black, at the rim, neck and shoulder. From a mid level of Period I A.

12. A low necked, wide mouthed jar with a mild ridge on the upper end of the shoulder. Well oxidized, globular body is treated with a thick cream slip on the outer surface of which is painted a dark brown mesh pattern within thick bands on and below the ridge, and a dark brown wash covering the inner surface up to the neck. From an early level of Period I A.

13. A low necked sturdy storage jar with an outcurved rim and globular body.

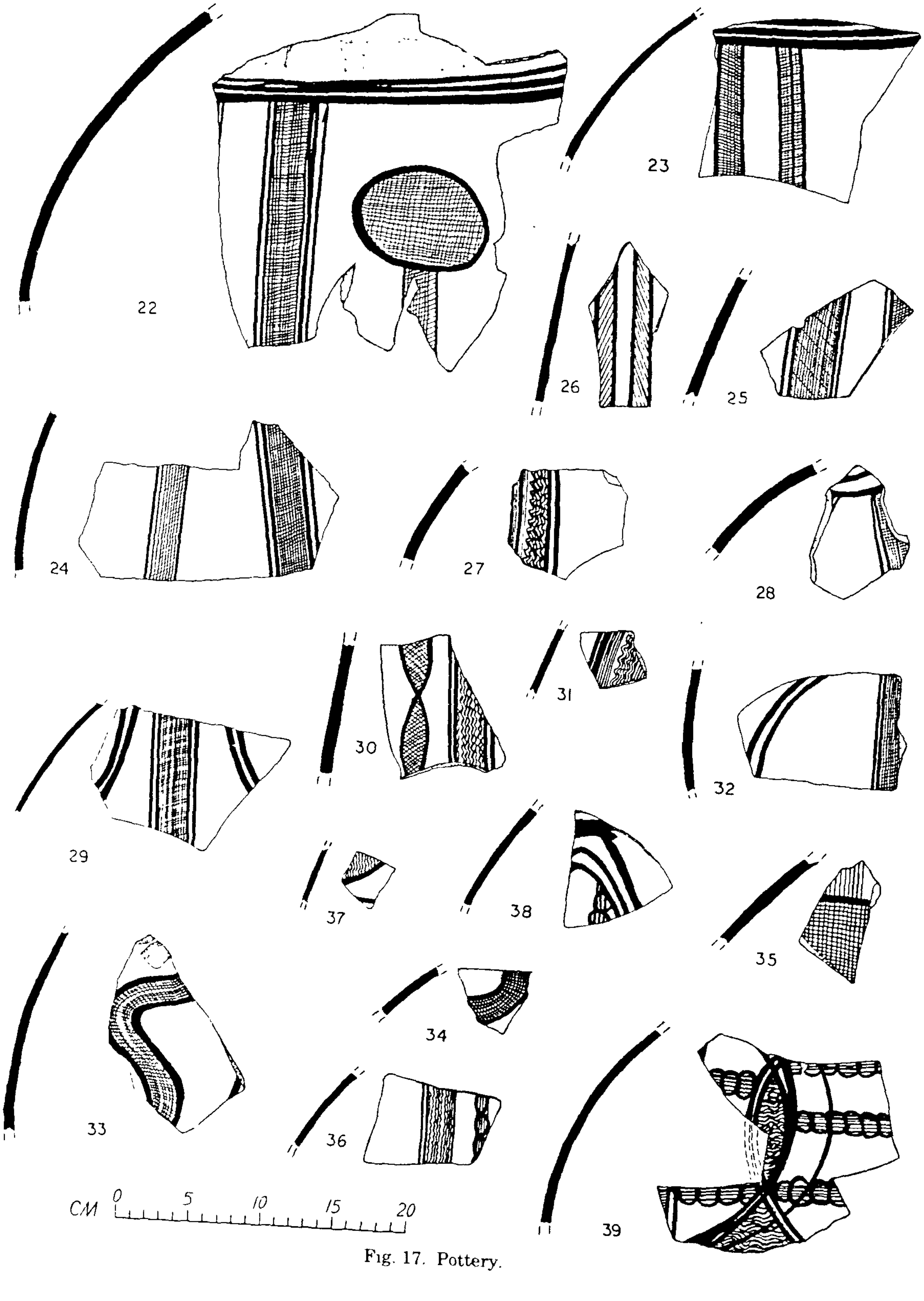


Fig. 17. Pottery.

Semioxidized, the core has turned black in the centre. On the outer surface is a thick cream slip over which is painted a mesh pattern within broad horizontal bands. The inner surface of the rim up to the neck is treated with a dark brown slip forming a band. From a mid level of Period I A.

14. A low-necked wide mouthed storage jar with an out-turned rim and a globular, fully oxidized body. The outer surface is treated with a thick cream slip over which is painted a thick band on the rim and a mesh pattern enclosed within thick bands on the neck and shoulders. From a late level of Period I A.

15. A low necked wide mouthed bulbous vessel with a short out-turned rim. Well oxidized, the outer surface is treated with a thin cream wash over which are painted black bands on the rim, the neck and another couple of bands on the shoulder, filled in with thin horizontal bands intersected by vertical strokes in spaced groups. From a late level of Period I A.[1]

16. A concave necked storage jar with a featureless rim. Well-oxidized, the outer surface is treated with a thick cream slip over which are painted mesh patterns in black, bordered by thick bands on the rim and shoulder. From a late level of Period I A.

17. A concave necked storage jar with a featureless rim and globular body. Well oxidized, the inner portion of the rim is treated with a thin red slip, forming a band and on the outer surface, bearing a cream slip, is a mesh pattern within thick black bands on the rim. From an early level of Period I A.[2]

18. A concave necked large storage jar with a featureless rim and bulbous body. Well oxidized, the outer surface is treated with a whitish cream slip over which is a mesh pattern within thick black bands on the shoulder. From a late level of Period I A.

19. A low necked wide mouthed storage jar with a globular body and an out-turned featureless rim. Fully oxidized, the outer surface is treated with a thick creamy white slip over which are two bands of mesh patterns on the shoulder and below the rim, over which is given a thin band, all in a light brown colour. From a late level of Period I A.

20. A low necked wide mouthed storage jar with out-turned rim and globular body. Semioxidized, the middle part of the core has turned black. On the outer surface is a thick cream slip over which is a band in dark brown on the edge of the rim and a thick band of multiple wavy lines in light brown, enclosed within a double banded border in dark brown on the shoulder region. From an early level of Period I A.

21. A low necked wide mouthed storage jar with a globular body and a short out-turned rim and a mild rib on the upper end of the shoulder. Fully oxidized, the outer surface is treated with a cream slip over which is a thick band in dark brown on the rim and a light brown band of wavy lines enclosed within thick dark brown bands on the shoulder. From a late level of Period I A.

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[1] Fairservis:1959, fig 18:310 a Jangal coarse

[2] *ibid*

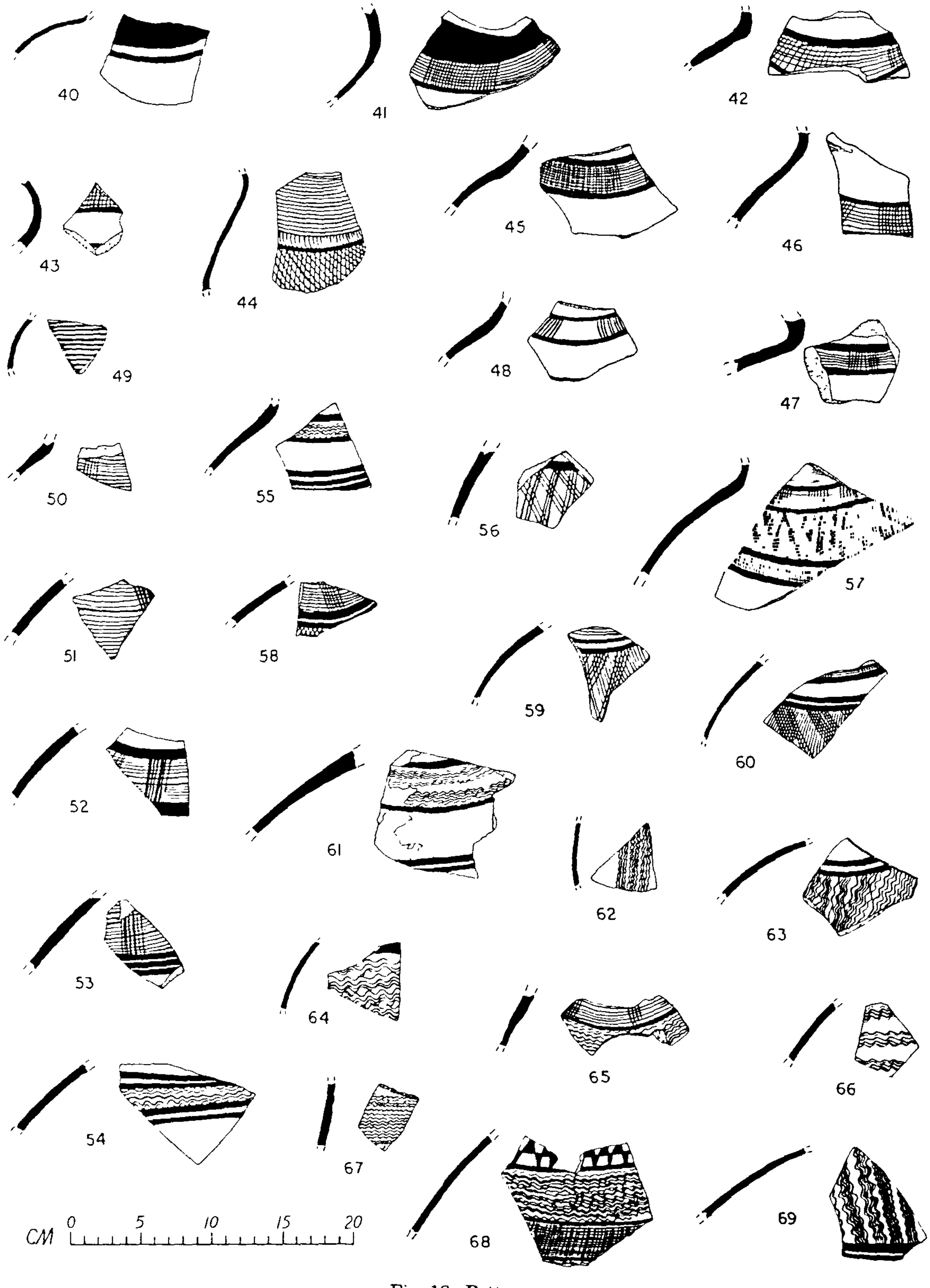


Fig. 18. Pottery.

Fig. 17

22. Body sherd of a large storage jar with a fully oxidized globular body. Upper part of the outer surface is treated with a dark tan slip, below which is the cream slipped surface separated by three horizontal black bands. To it are attached a couple of mesh columns enclosed within a double line border and a little away is another broad bordered meshed circle from which also is suspended a meshed-column painted in dark brown to black colour. From an early level of Period I A [Pl. XXXVII,1].

23. A similar, fully oxidized sherd having a thick cream slip over which are extant two mesh columns suspended from a double lined border painted in dark brown. From a late level of Period I A.

24. A similar, fully oxidized sherd with a thick cream slip over which are painted in dark brown and black two mesh columns of varying thicknesses. From an early level of Period I A.

25. An almost similar sherd with comparable pattern. From an early level of Period I A.

26. A body sherd of a partially oxidized cylindrical vase having the inner half of the core smoky in colour. On the outside is a thick creamy white slip over which are painted black-columns filled with lines slanting in alternate directions. From a mid level of Period I A [Pl. XXXVII, 3].

27. A body sherd of a fully oxidized vessel having a thick cream slip over which is painted in dark brown, a column of multiple wavy lines enclosed within a double lined border. From a mid level of Period I A.

28. A body sherd of a fully oxidized bulbous vessel treated on the outside with a thick cream slip over which are painted a black mesh column enclosed with a double lined border hanging from a double lined band. From a mid level of Period I A.

29. A fully oxidized body sherd from a large bulbous jar treated on the outside with a thick creamy white slip. Over it is painted in dark brown a mesh column within a double lined border. On either sides are double lined arches. From a late level of Period I A.

30. A fully oxidized body sherd forming part of a somewhat cylindrical form. On the cream slipped outer surface are painted in dark brown a vertically disposed double eye design filled in with a mesh pattern and a column of multiple wavy lines within a double lined border. From a mid level of Period I A.[1]

31. A fully oxidized sherd bearing a thick cream slip over which is painted a column of multiple wavy lines with multiple straight lines on either side in light brown, enclosed within a thick dark brown double lined border. From an early level of Period I A.

32. A fully oxidized body sherd with a thick cream slip, over which is a double lined

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[1] Fairservis:1959, fig. 405 219-220 Periano painted

arch from which hangs a mesh column enclosed within a double thick lined border. Painted in dark brown. From an early level of Period I A.[1]

33. A fully oxidized body sherd of a bulbous vessel having a cream slip. Over it is painted in dark brown a meandering mesh band within thick border lines. From a mid level of Period I A[2] [Pl. XXXVII, 19].

34. A similar sherd with a comparable pattern from, however, a smaller pot. From a late level of Period I A.

35. A fully oxidized sherd from the upper portion of a sturdy storage jar bearing a creamy white slip over which is painted probably an enmeshed circle in black with a broad outline above which seems to project a group of multiple straight lines. From an early level of Period I A.

36. A fully oxidized body sherd of a storage jar with a thick cream slip over which are painted in light black a column of multiple wavy lines within a thick border in deep brown or black. Beside it stands a hanging 'chain' pattern across which a group of five vertical strokes are drawn in light black brown. From a mid level of Period I A [Pl. XXXVII, 7]

37. A fully oxidized sherd with a cream slip over which are painted in deep brown circles with a thick outline filled with light brown multiple wavy lines. From an early level of Period I A.

38. A body sherd of a storage jar treated on the outside with a pinkish cream slip over which is painted in black brown an elongated triple lined arch from which hangs a 'chain' pattern with three lines drawn across. From a late level of Period I A.[3]

39. A fully oxidized body sherd of a storage vessel with a thick cream slip over which are painted in dark brown a double lined intersecting circles. Multiple 'chain' bands with multiple straight lines are drawn within it and are placed horizontally and the lenticular and triangular spaces above and below are filled with multiple wavy lines drawn horizontally. From a late level of Period I A[4] [Pl. XXXVII,2].

Fig. 18

40. A fully oxidized body sherd of a medium sized globular vessel with a cream slip over which is a broad and a thin band in dark brown paint. From a late level of Period I A.[5]

41. A body sherd of a medium sized concave necked vessel. Fully oxidized, the outer

[1] *I A R*, 1962-63, fig 2 N Kalibangan.

[2] Stein 1931, Pl XII Sh T V 3

Stein 1936, Pl XXV 41

[4] Fairservis 1959, fig 395 114 16 Jangal painted

ibid fig 331 39 a Jangal coarse

surface is treated with a cream slip over which is painted in dark brown/black a thick band on the neck and below it are multiple thin horizontal bands closed below by a thicker band. Across it are placed spaced groups of multiple vertical lines forming a mesh pattern. From a late level of Period I A.[1]

42. A fragment of a concave necked storage vessel. Fully oxidized, the outer surface is treated with a cream slip over which is a horizontal band of multiple thin, light brown lines bordered on either side with thick dark brown bands. Across it are drawn spaced groups of vertical lines in light brown pigment. From an early level of Period I A.[2]

43. A fragment of a sturdy jar with a concave neck. Though well-fired and oxidized, the central core is light black in colour. On the outer surface is a thick cream slip over which are painted mesh bands in light reddish brown enclosed with thick lines in dark brown. From an early level of Period I A.

44. A fully oxidized body sherd of a small ovaloid vessel, treated with a cream slip which has turned greyish. Over it are painted brown multiple bands followed by a broader band filled with standing curved lines, below which is a mesh pattern. From a late level of Period I A.[3]

45. A shoulder fragment of a fully oxidized storage jar, treated on the outside with a thick cream white slip over which is painted, in light brown, a band of horizontal lines crossed by spaced groups of vertical lines, enclosed within a thick border of deep brown paint. From a late level of Period I A.[4]

46. A fully oxidized shoulder fragment of a large storage jar, treated on the outside with a thick creamy white slip, over which is painted a similar band in light brown colour. From a mid level of Period I A.

47. A fragment of a low necked large globular jar with an out-turned rim. Semioxidized, the upper half of the core has turned black. The outer surface is treated with a thick cream slip over which is painted, in dark brown/black, a band of multiple horizontal lines cut by a spaced group of vertical strokes encased on outer sides by thicker bands, From a late level of Period I A.[5]

48. A fully oxidized fragment of a medium sized globular vessel with a thick cream slip over which is painted a similar band in light and dark brown lines. From a late level of Period I A.[6]

49. A well oxidized, but with a grey streak in the middle of the core, sherd with a light cream slip painted over in reddish brown with multiple horizontal bands. From a late level of Period I A.

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[1] Fairservis:1959, fig. 18.310 a Jangal Coarse

[2] *ibid.*

[3] *ibid.*, fig. 267.65 i.Jangal.

[4] *ibid.*, fig 18.310 a Jangal coarse.

[5] *ibid.*, fig. 18.310 a Jangal coarse.

[6] *ibid.*, 1961, fig. 106.31 a Gardan Reg.

50. A well oxidized sherd with a creamy white slip over which are painted multiple horizontal bands, crossed by a group of vertical bands in dark brown. From an early level of Period I A.[1]

51. A well oxidized sherd with an yellowish cream slip but having a black streak in the core, over which are painted in light-black multiple horizontal bands, crossed by a group of oblique strokes. From a late level of Period I A.

52. An oxidized sherd with a greyish streak in the middle of the core, treated on the outside with a thick cream slip. The pattern, painted in light brown, is a band of multiple horizontal lines within a border of thick lines over which is drawn a group of vertical strokes. From a late level of Period I A.

53. A fully oxidized sherd with a light cream slip bearing a similar pattern drawn in light brown paint. From a late level of Period I A.[2]

54. A sherd with smoky red core and a thick cream slip over which is painted in light brown a horizontal band of multiple wavy lines enclosed within a thick dark brown double line border. From an early level of Period I A[3] [Pl. XXXVII, 8].

55. A fully oxidized fragment of a bulbous jar treated on the outside with a cream slip, over which are painted bands consisting of multiple horizontally disposed wavy line in dark brown within a border of thick lines and three thick lined bands. From a mid level of Period I A.[4]

56. A fully oxidized deep red sherd with a thick cream slip painted over in dark brown with a thick horizontal band, below which alternatively slanting lines are arranged in groups of three, forming thereby a mesh pattern. From an early level of Period I A.

57. A fragment of a fully oxidized vessel with a cream slip on the outside, over which are painted, in light brown, bands of multiple horizontal lines cut by spaced groups of vertical lines, a mesh band formed by groups of lines slanting in opposite directions and another band of horizontal lines cut by vertical lines, each band being separated and bordered by thick lines in dark brown. From a mid level of Period I A [Pl. XXXVII,17].

58. A fragment of a fully oxidized bulbous vessel, treated on the outside with a cream slip, over which are painted multiple horizontal lines cut by groups of vertical lines and a mesh pattern separated by two thick lines painted in dark brown. From a late level of Period I A.

59. A fully oxidized sherd with a black streak in the middle of the core is treated with a light pinkish cream slip. Over the slip are painted multiple horizontal bands and a mesh pattern formed by groups of three lines slanting in opposite directions in light black and separated by thick bands in dark black. From an early level of Period I A.

[1] Fairservis:1959, fig. 18.310 a Jangal coarse.

[2] *ibid.*

[3] *ibid.*, fig. 331.3 ff., 7 i Periano Ghundai cf. 61, 65, 68.

[4] *ibid.*

60. A fully oxidized sherd from the shoulder region of a globular vessel, treated on the outside with a pinkish cream slip. Over it are painted, in light black/brown, multiple horizontal bands cut by groups of vertical bands and multiple vertical lines cut by groups of oblique lines, each group being bordered within a single or double lined thick border painted in dark black. From a mid level of Period I A.

61. An oxidized sherd with a brownish core and thick yellowish cream slip. It is painted over with a dark brown band of multiple wavy lines within a black, dark brown border. Below it there is another double lined dark brown band. From a late level of Period I A.

62. A fully oxidized sherd with a thick cream slip over which is painted, in light black, a column of multiple wavy lines. From a mid level of Period I A.

63. An oxidized sherd from the shoulder region of a globular vessel, treated on the upper surface with a pinkish cream slip, over which is a double lined neck band from which hang multiple wavy lines. From a mid level of Period I A.

64. A fully oxidized sherd with a creamy slip over which is painted a thick horizontal band, below which are multiple wavy lines disposed horizontally in black. From an early level of the Period I A.[1]

65. An oxidized sherd from the shoulder region of a bulbous vessel, treated with a thick cream slip. Over it, divided by a thick black horizontal band, are painted multiple horizontal lines intersected by groups of vertical strokes above and multiple wavy lines below. From a mid level of Period I A.

66. A fully oxidized sherd with a smoky core and greyish cream slip over which are painted in dark brown three bands of multiple wavy lines. From an early level of Period I A.

67. A fully oxidized sherd from the shoulder region of a small ovaloid jar. On the outside, over a cream slip, are painted multiple horizontal wavy bands in light black. From an early level of Period I A.

68. A fully oxidized sherd from the shoulder region of a bulbous jar treated on the outside with a cream slip. Over it are painted three horizontal panels, from top downwards, of solid triangles with displaced bottoms and apexes in opposite directions, multiple wavy lines and a mat pattern, each separated by a thick black band. From a late level of Period I A[2] [Pl. XXXVII, 6].

69. A fully oxidized body sherd with a cream slip over which are painted, in light brown, groups of vertically placed wavy lines standing on a thick double lined border. From an early level of Period I A.[3]

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[1] Fairservis: 1959, fig. 336.41 b. Jangal painted.

[2] *ibid.*, figs. 339.44 e Jangal painted, 412.302 Periano painted; Stein:1929, Pl. XX.S.J.I.C., ii.31; *ibid.*, 1931, Pl. XXII.Sh.T.19, i, *ibid*:1936, Pls. XXI,I; XXII.60; De Cardi:1970, figs. 23.177 (IV.1); 35 356 (V.I).

[3] Casal: 1964, figs. 44.49 (I.A); 66.232 (I D), 67.250 (II A).

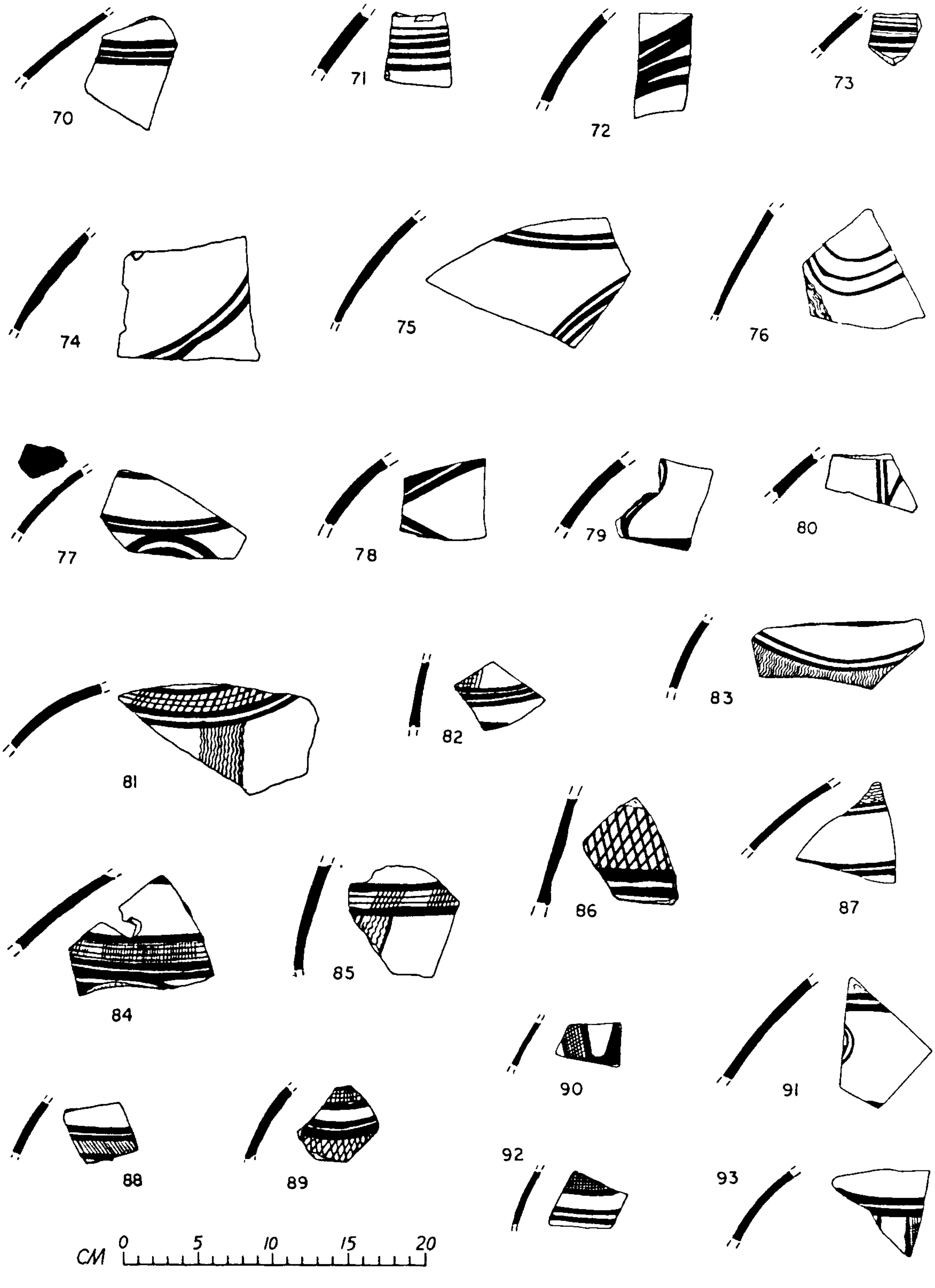


Fig. 19. Pottery.

Fig. 19

70. A fully oxidized cream slipped sherd with three thick horizontal bands painted in dark brown. From a late level of Period I A.

71. A fully oxidized sherd with a smoky core and smoky cream surface painted over with five thick horizontal bands in dark brown. From an early level of Period I A.[1]

72. A fully oxidized sherd treated on the outside with a cream slip, painted over in dark brown with thick double lined arches curving in opposite direction. From an early level of Period I A.

73. A fully oxidized sherd treated with a cream slip, painted over in dark tan with two thin and three thick horizontal bands. From a late level of Period I A.

74. An oxidized sherd treated with a cream slip and painted over in black with a thick double lined arch. From a late level of Period I A.

75. A fully oxidized sherd treated with a thick cream slip over which is painted, in dark brown, a double lined horizontal band, below which is a triple lined arch. From a late level of Period I A.

76. A fully oxidized sherd treated with a whitish-cream slip, over which is painted, in dark brown, a triple lined inverted arch. From an early level of the Period I A.

77. A fully oxidized sherd treated on the outside with a whitish cream slip, over which are painted two double lined horizontal bands in dark brown, and from the lowest line of which is attached a double lined arch. From a late level of the Period I A.[2]

78. An oxidized sherd with a creamy-white slip over which are painted, in dark brown, double lined bands drawn slantingly. From an early level of Period I A.

79. An oxidized sherd with a creamy-white slip over which is drawn a thick horizontal band in light brown over which stands a slanting curved line, doubled in the middle in dark brown. From a late level of Period I A.[3]

80. An oxidized sherd with a light brown core. It is treated with a creamy white slip, over which are painted, in light brown, horizontal bands over which stand double lined columns, having a single slanting line forming a 'V'. From a late level of Period I A.

81. A fully oxidized sherd with a reddish cream slip over which is painted in dark brown a horizontal mesh band enclosed within a double lined border, from which hang a group of wavy lines in light brown. From a mid level of Period I A.[4]

82. An oxidized sherd treated with a thick cream slip on the upper half above a triple

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[1] Fairservis: 1959, fig. 24.316 a-c Jhukar style.

[2] *I.A.R.* 1962-63, fig. 2.P.Kalibangan.

[3] Fairservis:1959, fig. 339.44 T. Jangal painted.

[4] *ibid.*, figs. 18.310 Jangal coarse; 334.39 b,j,k. Jangal coarse burnished; *I.A.R.*, 1955-56, fig. 5 Nagda.

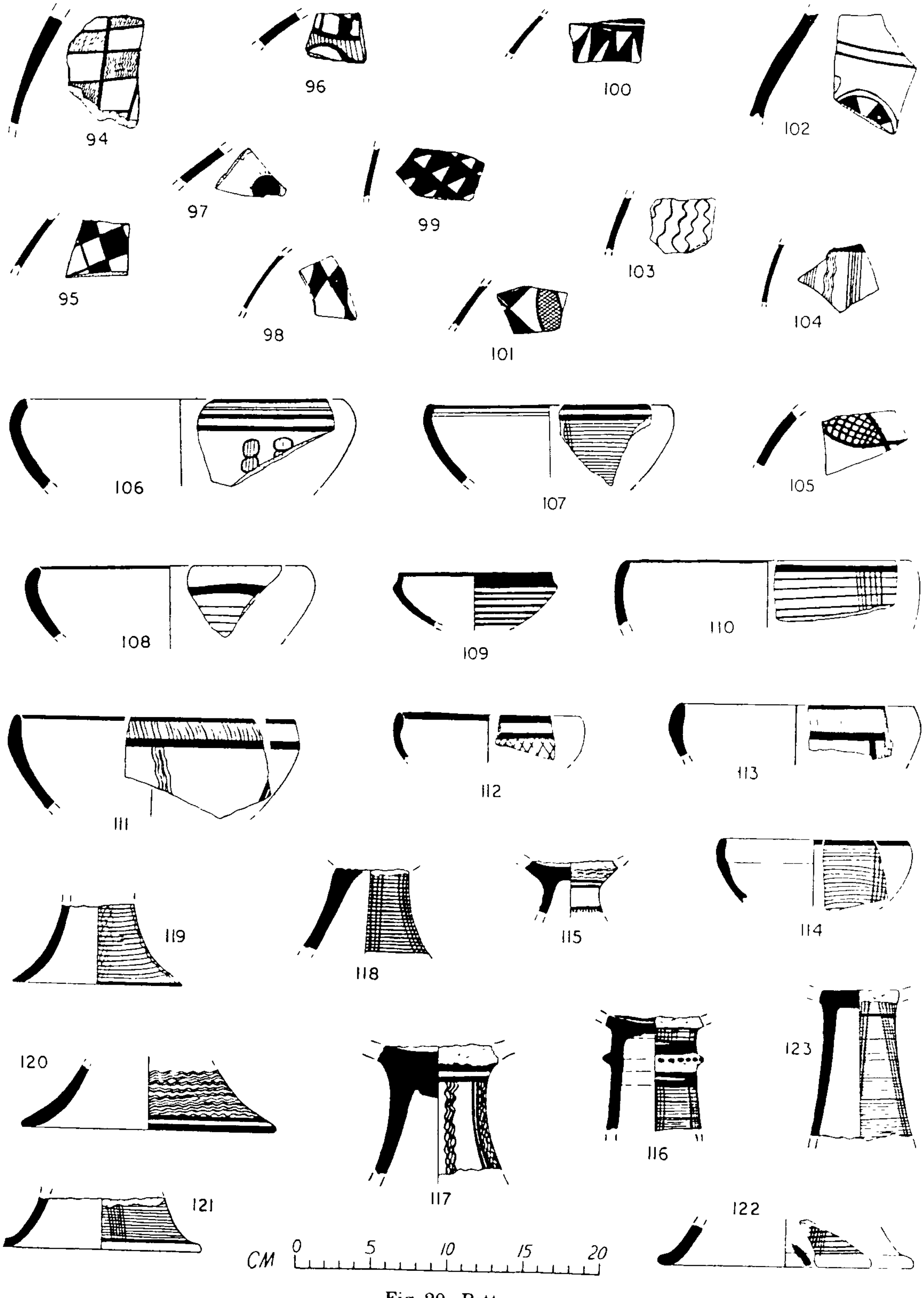


Fig. 20. Pottery.

lined arched border. Over it stands a mesh column. Below, over a light brown wash, is another horizontal band. All decorations are in dark brown. From a late level of Period I A.

83. A fully oxidized sherd treated with a creamy slip over which are painted, in dark brown, double lined horizontal bands, from which are suspended multiple wavy lines. From a mid level of Period I A[1] [Pl. XXXVII. 14].

84. A fully oxidized sherd treated with a thick creamy slip over which are painted thick horizontal bands in black, the two lower being filled in with multiple thin horizontal lines crossed by spaced groups of vertical lines, forming a mesh pattern. From a late level of Period I A.

85. An oxidized sherd treated with a thick cream slip over which is painted, in black, multiple horizontal bands crossed by spaced groups of vertical strokes put within thick borders. Below, hangs a column of wavy lines within thick bands. From a late level of Period I A.[2]

86. An oxidized sherd with a thick creamy slip over which is painted a mesh pattern in dark brown enclosed on the lower side by a double lined thick border. From an early level of Period I A[3] [Pl. XXXVII, 13].

87. An oxidized sherd with a thick creamy slip over which is painted, in black/brown, a light hued horizontal band of multiple wavy lines within a dark coloured double lined band; below is another dark coloured double lined horizontal band. From a late level of Period I A.

88. A fully oxidized sherd treated with a buffish-white slip, over which is painted a light brown horizontal band of slanting lines within a dark black double lined border. From a late level of Period I A.[4]

89. An oxidized sherd with a blackish core, treated on the outside with a cream slip, in places smoky; it is decorated with a horizontal band of mat pattern and a mesh band, both within a single and a double lined border in black. From an early level of Period I A.

90. An oxidized sherd treated with a creamy white slip over which is painted a design in black comprising a horizontal band over which stands a solid column and another filled in with a mat pattern. From a late level of Period I A.

91. An oxidized sherd with a thick creamy slip painted over in dark brown with a double lined horizontal band, below which is a double lined circle with a compartmented interior, alternatively filled in with a solid pigment. From a late level of Period I A.[5]

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[1] Fairservis:1959, fig. 336.41 a Jangal painted.

[2] De Cardi:1970, fig. 17.4 (I)

[3] Fairservis:1959, fig. 393.86 Jangal painted.

[4] *ibid*, fig. 388.26 KGM Black over Red.

[5] Stein:1936, Pls. XXI.2; XXV.29

92. A fully oxidized sherd treated on the outside with a buffish white slip over which is painted in dark brown a mat band with a thick border and a double lined horizontal band below. From an early level of Period I A.

93. An oxidized sherd with a thick cream slip; over it is painted a double lined horizontal band in black to which are attached hanging columns filled in with a mat design. From an early level of Period I A.

Fig. 20

94. A fully oxidized sherd treated with a creamy slip over which is painted a chequer-board pattern with dark brown bands with alternative squares filled in with vertically disposed, multiple wavy lines in light brown. From a late level of Period I A[1] [Pl. XXXVII,12].

95. An oxidized sherd treated with a dusty cream slip over which is painted a chequer-board pattern in black with solid alternate squares. From a mid level of Period I A[2] [Pl.XXXVII, 18].

96. An oxidized sherd treated with a cream slip over which is painted in black a chequer-board pattern with solid alternate squares below which is a hollow arch, the sides being filled in with slanting lines. From a late level of Period I A.

97. An oxidized sherd with a light cream slip over which is a solid circle with a dotted border in black/brown all around. From a late level of the Period I A.[3]

98. A fully oxidized sherd treated with a whitish-creamy slip over which is painted a pattern in black/brown comprising solid triangles meeting at apexes forming a butterfly pattern. From the upper levels of Period I A.[4]

99. A fully oxidized cream slipped sherd with alternately filled in solid triangles in brown/black. From a late level of Period I A[5] [Pl. XXXVII, 11].

100. An oxidized sherd treated with a creamy slip over which are painted multiple solid triangles in brown/black below a double lined horizontal band. From a mid level of Period I A.[6]

101. A fully oxidized sherd having a cream slip over which is painted a lenticular form in dark black/brown outline and a pair of intersecting diagonals; while the former

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[1] Fairservis:1959, fig 396.117-19 Jangal painted.

[2] *ibid.*, figs. 396.123 Jangal painted; 416.283 Periano painted; Stein·1929, Pl V P.10; *ibid.*,1931, Pl. II Besh I, *ibid*:1936, figs XXV 12,13, Casal: 1964, figs. 44 52 (IA); 53 125 (IB); 56.15a, 59.182,61.179,186 (IC), 69 275 (IIB)

[3] Majumdar: 1934, Pl. XXVIII. 16 Pandiwahi, Stein·1936, Pls. XXI 2, XXIII.II. 28

[4] Casal 1964, fig. 62 206 (ID) Pandiwahi; Stein:1936, Pls XXI 2: XXIII.11,28 Black over Red, Stein·1929, Pl-V P.15

[5] Casal: 1964, fig 90 458 (IIIC).

[6] Stein·1936, Pl. XXVI 4

is filled in with a light brown mesh pattern, the diagonals are filled in solid colour to form opposing triangles. From an early level of Period I A[1] [Pl. XXXVII, 9].

102. A fully oxidized sherd with a smoky core treated with a thick whitish slip over which is painted a double lined band; below is a similar circle with multiple solid triangles alternating with similar vacant spaces. From a mid level of Period I A.

103. A sherd with black core and reddish surfaces treated with a cream slip over which are painted multiple vertically placed wavy lines in light brown. From an early level of Period I A.[2]

104. An oxidized sherd treated with a cream slip over which is painted a thick horizontal band in black brown, from which hang columns of multiple straight and wavy lines. From a late level of Period I A.

105. A fully oxidized sherd with a dusty cream slip, painted over in light reddish brown with a horizontally placed lenticular forms filled in with a mat pattern forming the body, perhaps, of a bird or a fish. From a late level of Period I A [Pl. XXXVII,15].

106. A hemispherical bowl with a round bottom and an incurved featureless rim. Though well oxidized, the central region of the core is burnt black. While the inner surface is treated with a dark brown wash, the outer surface having a yellowish-white slip bears multiple rim bands from which chain patterns are suspended filled with the light coloured lines in reddish brown. From a late level of the Period I A.[3]

107. A tapering sided bowl with a semioxidized core, treated on the interior with a black-brown wash and on the outside with a thick creamy slip over which are double black horizontal rim bands; below are multiple horizontal bands cut by spaced groups of vertical lines in light brown. From the mid-level of Period I A.

108. A similar bowl with a slightly incurved rim and a semi oxidized core, treated on the interior with a light brown wash and a cream slip on the exterior. It is decorated with a black band on the inner edge of the rim and a thick deep brown band on the junction of the neck and the body below which are multiple thin horizontal bands. From an early level of Period I A.

109. A similar but fully oxidized bowl with a slightly inturned, short, featureless rim, treated with a dark brown wash on the inside and with a white slip on the outside, over which are painted multiple horizontal bands in dark brown. From a late level of Period I A.

110. A similar bowl with a slightly inturned featureless rim, fully oxidized body treated with a cream slip on the outside; over it are painted multiple horizontal thin bands in black intersected by a group of vertical lines. Above these is a broad horizontal black band. From a late level of Period I A.

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[1] Fairservis:1959, fig. 404.211 Periano painted, Stein:1936, Pls. XXI.2, XXV.29.

[2] De Cardi:1965, fig. 16.22 (Siah-II iii); Fairservis;1956, fig. 313.494 Quetta Ware; *ibid:* 1959, fig. 409.266 Periano painted.

[3] Stein:1931, Pl. XXVI.Nun 41; Sankalia et al: 1958, figs. 21, 23

121. A similar base of dish-on-stand treated on the outside with a creamy white slip over which are painted ligh brown multiple horizontal lines, crossed over by spaced groups of vertical lines above a broad band set in black on the edge. From an early level of Period I A.[1]

122. A similar base of a dish-on-stand treated over with a thick cream slip bearing multiple horizontal lines crossed by spaced groups of vertical lines in deep brown. From a late level of Period I A.[2]

123. A fully oxidized upper portion of an almost cylindrical stem of a dish-on-stand, treated on the outside with a cream slip over which are painted, in deep brown, multiple horizontal bands crossed by spaced groups of vertical lines. From a mid level of Period I A.

Fig. 21

124. An oxidized sherd with a cream slip over which are painted broad horizontal bands with thick outlines filled in with vertical lines in black-brown. From a late level of the Period I A.[3]

125. An oxidized sherd with a whitish cream slip over which are painted horizontally disposed vertical lines with broad, black bands above and below. From a mid level of Period I A.

126. A semioxidized sherd with a cream slip over which is a black arch; from it is suspended a mat patterned column within a wavy line in light brown. From an early level of Period I A.

127. A fully oxidized sherd with a light thin cream wash over which is painted in deep brown a double lined horizontal band, below which are placed alternating, double straight and wavy lines in vertical disposition. From a mid level of Period I A.[4]

128. A semi oxidized sherd with a creamy slip over which are painted double lined triangles in dark brown filled with wavy lines and a chain pattern with lines running lengthwise. From a late level of Period I A.[5]

129. An oxidized sherd with a whitish slip over which are painted multiple vertical lines in deep brown, the inner spaces being filled in with slanting lines in opposite directions. From a mid level of Period I A.

130. An oxidized sherd with a light cream slip over which are painted in black short vertical lines enclosed within multiple horizontal bands, below which is an arch in outline. From an early level of Period I A.

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[1] Fairservis,1959, fig 18.310 a Jangal coarse

[2] *ibid*

[3] De Cardi 1965, figs 13.9-10, 14.36-37 (Siah II, in)

[4] Sankalia et al 1958, fig 21.23

[5] Sankalia et al 1969, fig 18.82

131. A semioxidized sherd with brownish cream wash over which are painted horizontal bands in brown; above it are groups of double 'sigmas'. From a late level of the Period I A.[1]

132. A partially oxidized sherd with a reddish cream slip, over which are painted multiple horizontal bands in brown, above which are solid inverted triangles arranged in a horizontal band. From a late level of Period I A.[2]

133. An oxidized sherd with a creamy slip over which is a horizontal band of multiple wavy lines in light brown within dark black-brown bands. Above and below are vertically placed lenticular outlines with mesh patterns within. From an early level of Period I A.[3]

134. A fully oxidized bottom of a pedestelled deep bowl with a whitish cream slip; over it are painted multiple horizontal bands in black, above which are multiple wavy horizontal lines. From a mid level of Period I A.

135. The body sherd of a large bulbous jar with a fully oxidized core and thick cream slip, over which are painted multiple banded arches in thick black-brown, from which are suspended double bordered vertical columns filled with light brown wavy lines. From a late level of Period I A [Pl. XXXVII, 4].

136. An oxidized portion of convex sided bowl with slightly in-turned rim treated with a pinkish cream wash; it is decorated on the outside with double horizontal bands in reddish brown below which is a slantingly disposed chain pattern. From an early level of Period I A.

137. A semioxidized fragment of a slightly inturned rim of a convex sided bowl with a dark tan wash on the outside below the turning rim; above it, over a whitish slip, are painted spaced groups of lines in black-brown slanting in alternate directions. From an early level of Period I A.

(iii) Polychrome Red Ware

Fig. 22

1. A concave necked and narrow mouthed, fully oxidized globular jar with red washed and burnished exterior surface; on the shoulder is painted a broad horizontal band of multiple wavy lines in white, enclosed within a multiple lined black border, having a white line below inbetween and a black wavy line above inbetween against a white background. Similarly, on the rim is a double lined band over a white background, and on the neck is a somewhat broad black band. From a late level of Period I A[4] [Pl. XXXVIII, 1].

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[1] Fairservis 1959, fig. 340 45 j.m. Periano painted

[2] *ibid.*, fig. 24 316 f Jhukar like, Majumdar 1934, Pl. XXXI 25,30 Jhangar; Vats 1940, Pl. LXV etc., *I A R* 1962-63, Stein 1929 Pl. XIV T D F 12

[3] Mackay 1943, Pl. XLXI 23 Jhukar, Fairservis 1956, fig. 296 290 Quetta Ware, *ibid.* 1959, figs. 18.310 m.o Kechi Beg Polychrome, 335 40 i, 391 59 Jangal painted, 402 185 Kechi Beg Polychrome, 418.381-83 Periano painted, Stein 1929, Pl. XX, s.j. 33 81

[4] *I A R* 1961-62, fig. 15 8 11 *ibid.*, 1962-63, fig. 2 A

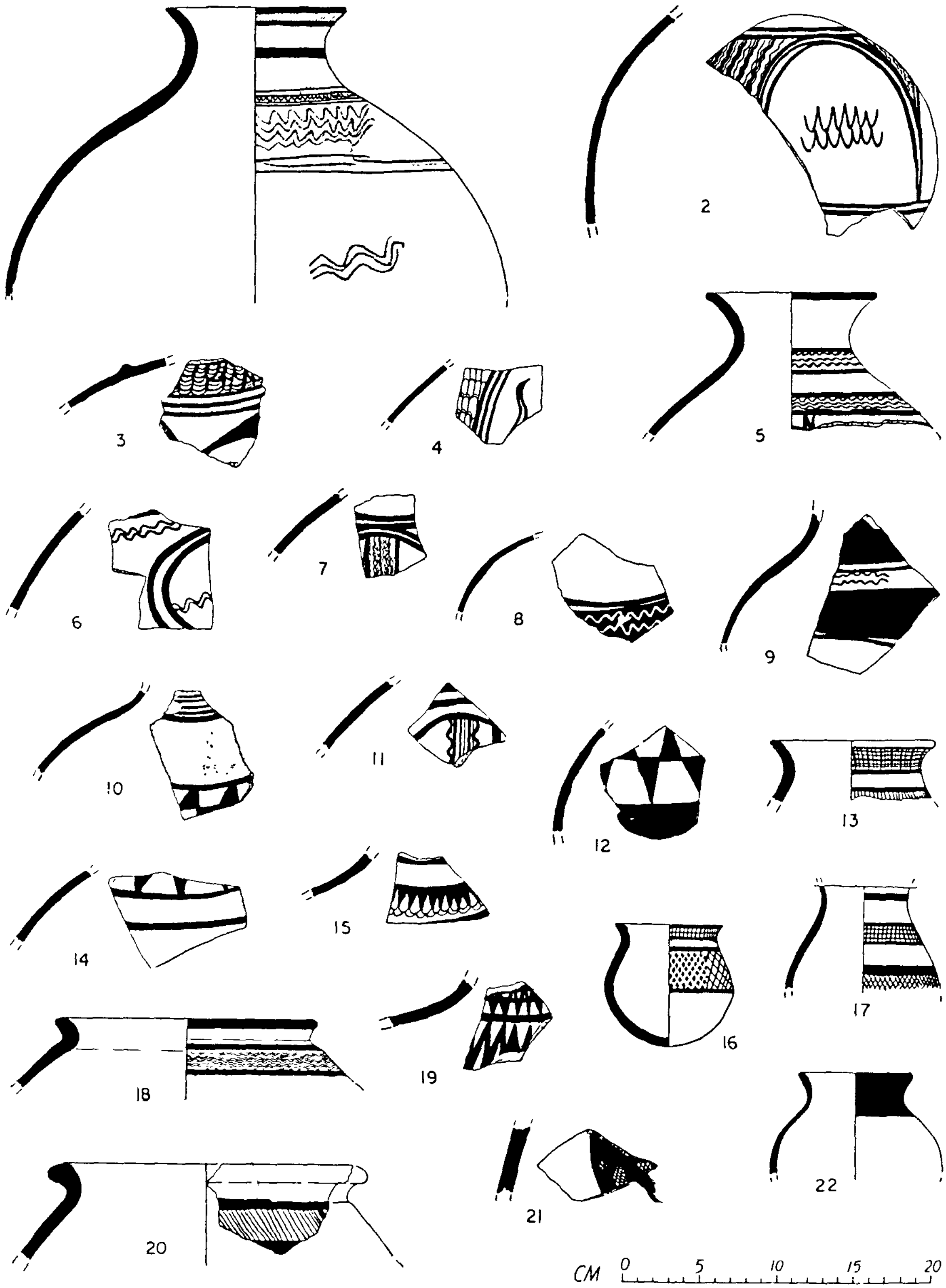


Fig. 22. Pottery.

2. A fully oxidized upper portion of the body of a globular jar. The outer surface is treated with light tan wash over which are painted in black a double lined border enclosing a panel with twin lined arches. While the triangular spaces of the columns are filled in with groups of slanting, multiple, wavy lines, the arches contain short, double wavy lines. The upper and lower borders have each a white line within. From an early level of Period I A[1] [Pl. XXXVIII,2].

3. An oxidized fragment of a bulbous jar with a ribbed shoulder treated with a dull white wash on the exterior. Over it, above the ridge are multiple loops forming a horizontal band all round; on and below this ridge are solid triangles with concave bases within double bands. From a mid level of Period I A.

4. An oxidized sherd with a whitish wash over which is painted a triple lined arch in dark brown with a double wavy line in the middle; the triangular-spaced column is filled in with multiple superimposed arches. From a mid level of Period I A.

5. A concave necked jar with a featureless rim, bulbous body and fully oxidized core. The outer surface is treated with tan wash over which are painted multiple black horizontal bands on the rim and shoulder. Those on the latter region are filled with two wavy horizontal lines in light brown drawn over a white background. Suspended below is a column filled with slanting lines drawn over a white background. From a mid level of Period I A.[2]

6. A semioxidized sherd with a shiny black wash over which are painted double curves and double wavy lines in violet. From a late level of Period I A.[3]

7. A partially oxidized sherd painted in black over a white washed portion with doublelined arches below a double horizontal band. Within stands a column of vertically disposed multiple wavy lines with a straight lined border. From an early level of Period I A.

8. A semioxidized body sherd of small globular vessel painted over with a deep broad reddish brown band; above it are multiple wavy lines in white. From an early level of Period I A [Pl. XXXVIII, 5].

9. Body sherd of a fully oxidized bulbous vessel with a narrow mouth. Painted over in red with broad bands is the black border having double wavy lines in between. From a late level of Period I A[4] [Pl. XXXVIII, 8].

10. A fragment from the upper portion of the body of a globular vessel with a semioxidized buffish core. The outside shoulder and belly regions are treated with a red slip forming thick broad bands, which are enclosed on either side with black lines. Above the neck band are four more thinner bands in black. In between the two broad red bands are painted displaced triangles in black with their apexes pointing above and below. From an early level of the Period I A.

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[1] *I.A.R.* 1961-62, fig. 2.5 Kalibangan

[2] Fairservis 1956, fig 284 146-47 Quetta ware, *ibid*·1959, fig 339'49 u Periano painted

[3] *ibid*., 1961, fig 106.9 Gardan Reg

[4] *ibid*., 1956, fig 284 149, 152 Quetta ware; *I.A.R.*, 1961-62, fig. 15-1 Kalibangan

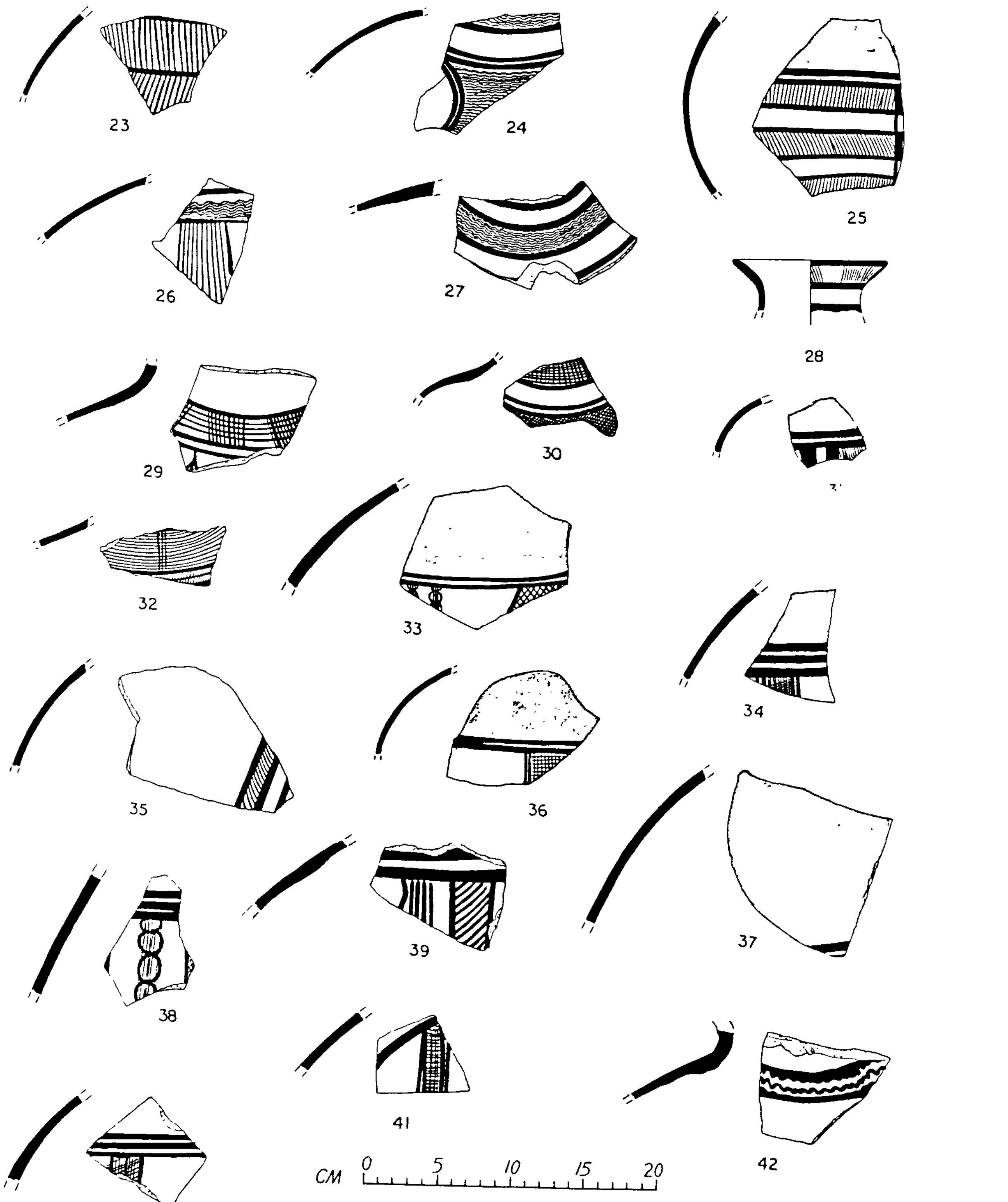


Fig. 23. Pottery.

11. A fully oxidized sherd painted over a red surface with triple lined arches having a multiple lined column with wavy borders on either sides in black. From an early level of Period I A.[1]

12. A fully oxidized fragment of a small bulbous jar having a white washed surface painted over in black with solid displaced triangles having apexes above and below, standing on a broad band in black. From a late level of Period I A[2] [Pl. XXXVIII, 4].

13. A low necked jar with a short featureless rim and a semioxidized globular body. On the edge of the rim is a painted black band, and on the shoulder a stepped band in cream and multiple wavy lines in light brown, enclosed within two horizontal black bands, are painted. From a mid level of Period I A.[3]

14. A fragment from the upper portion of the body of a globular vessel with a semioxidized buffish core. On the outside, the shoulder and the belly region is treated with a red slip forming thick broad bands, which are enclosed on either side with thick black lines. Above the neck band are four more thinner bands in black. In between the two broad red bands are painted displaced triangles in black with their apexes pointing above and below. From an early level of Period I A.[4]

15. A low concave necked and narrow mouthed storage vessel with a featureless rim and a bulbous body. Oxidized. Over the rim and shoulder are mat-filled bands painted in brown and white pigments. From an early level of Period I A[5] [Pl. XXXVIII, 9].

16. The shoulder fragment of a small bulbous bodied vessel with an unoxidized core and bright red surface over which are painted a series of pendant triangles over a white-washed portion with their apexes linked through double loops. From a late level of Period I A.[6]

17. A small low concave necked vessel with a featureless rim, bulbous body with a mild carination and semioxidized core. On the red surface is painted in white and dark brown pigments a mat filled band on the rim and a mesh patterned band on the shoulder above the carination. From a late level of Period I A.

18. A concave necked vessel with a fully oxidized ovaloid body. On the outer brown-washed surfaces are painted a black-brown band on the neck and a couple of mat filled bands over a whitened surface on the shoulder region. From a late level of Period I A.

19. A partially oxidized neck fragment of a bulbous vessel with a whitish wash over

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[1] Fairservis. 1961. fig 106-29 Gardan Reg; *I A R, 1962-63*, fig. 2 N. Kalibangan.

[2] *ibid*., fig. 5 E Kalibangan, Stein.1929, Pl XIV D 59, *ibid*. 1931, Pl XII Sh. T. 19, *ibid*:1937, Pls. XXI.1, XXII.60; De. Cardi.1970, fig. 35.356 (V.I), Fairservis:1959, fig 412 302, Periano painted.

[3] *I.A.R*., 1961-62, fig 15 10 Kalibangan.

[4] Casal:1964, figs. 44 19(IA), 66 232(ID), 67 250(IIA), Stein 1929, Pl XX S J ii.32; i.c

[5] Vats: 1940, Pl LXV 43

[6] Fairservis 1959, fig 334-390 Jangal coarse; Stein 1936, Pl. XXI 9; *I.A R*., 1961-62, fig. 15.16, 19 Kalibangan

which are painted panels in brown, filled with solid displaced triangles with their apexes facing opposite directions and zigzag lines. From an early level of Period I A.[1]

20. A low necked wide mouthed storage jar with a short outturned beaded rim and a semioxidized bulbous body with a black core. On the outer surface the shoulder region bears a black brown band filled in with slanting lines over a white background. From a mid level of Period I A.[2]

21. An oxidized thick sherd painted over red with a black oval filled with solid triangles with displaced bases and mesh filled vacant spaces in light brown over a white background. From an early level of Period I A.

22. A fully oxidized fragment of a small bulbous jar with a slightly out turned featureless rim. On the outside, the rim and part of the shoulder bear a broad band in black over a mat red surface. From a late level of Period I A[3] [Pl. XXXVIII, 3].

Fig. 23

23. A fully oxidized sherd treated with a white slip over which are painted black bands filled in with lines slanting in alternate directions. From a late level of Period I A.

24. A semioxidized sherd with a black core bearing a white slip over which are painted multiple wavy lines within black borders laid horizontally in light brown pigment. From a late level of Period I A.

25. The body portion of a fully oxidized globular pot bearing horizontal bands filled with lines slanting in opposite directions over a cream slipped surface; the remaining part is left unslipped. From a late level of Period I A.

26. A semioxidized sherd bearing a horizontal band of multiple wavy lines within two straight lines from which is suspended a column of multiple straight lines in black, retouched with white. From a late level of Period I A.[4]

27. A partially oxidized shoulder fragment of a bulbous jar with black core. The whitewashed outer surface bears many thick black bands, the inner two of them being filled with multiple horizontal lines in a lighter shade of the black. From a late level of Period I A.

28. A concave necked narrow mouthed jar with a bulbous oxidized body and a featureless rim. On the light brown washed surface are painted multiple horizontal lines crossed by spaced groups of vertical lines in black over white on the rim. From a late level of Period I A.

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[1] Fairservis:1959, fig 334 39 d Jangal coarse.

[2] *ibid*, fig 351.56 c Jhukar like

[3] *I.A.R*, 1962-63, fig 5.1 Kalibangan.

[4] Fairservis:1959, fig 335 40 Jangal painted; *ibid* 1961, fig 106 28.31 Gardan Reg

29. A semioxidized fragment from the shoulder region of a bulbous jar treated with a whitish wash over which is painted a band in black-brown with multiple horizontal lines crossed by spaced groups of vertical lines. Below this some design looking like the tip of a leaf pattern appears. From a mid-level of Period I A.

30. A similar fragment with a semi oxidized bulbous body, treated with brownish wash over the surface, which is decorated with a mat filled band in dark brown and a mesh patterned band in white are painted above and below the shoulder respectively. From a mid level of Period I A.

31. A fully oxidized fragment of a small bulbous jar treated with a red wash over which are suspended broad black bands on a cream slip, the gap being filled with thin slanting lines. From a late level of Period I A.

32. A semioxidized shoulder fragment of a small bulbous jar with a black wash over which are multiple horizontal bands in black and white; across them are drawn three vertical lines in black, the lower bands being filled with slanting lines. From a mid level of Period I A.

33. A fully oxidized body fragment of a globular jar with a red washed surface over which are painted double lined black horizontal bands in black. Below, over a cream washed surface, are painted suspended chains with cross lines and mesh-filled truncated triangles. From a mid level of Period I A.

34. A fully oxidized sherd with a reddish brown wash over which are drawn three horizontal bands in black, and below is drawn, over a thick cream slip, a slanting column filled in with a mat-pattern and enclosed within double lined borders in black. From a late level of Period I A.

35. A fully oxidized sherd treated with red wash over which are painted vertically disposed bands in black, filled in between by slanting black lines over a white surface. From a mid level of Period I A.[1]

36. A fully oxidized body sherd of a bulbous jar treated with a red wash below which are two horizontal bands in black, from which is suspended a mat-design enclosed within a double lined border over a cream surface. From a mid level of Period I A.

37. A semioxidized fragment from the body portion of a large bulbous storage jar treated with a cream slip over which multiple horizontal bands are painted in black and above which is a broad band in a red slip. From a late level of Period I A.

38. An oxidized sherd with a brownish core and a cream slipped surface over which triple horizontal bands are painted; a chain with lines drawn across and a similarly disposed column filled with multiple wavy lines drawn vertically across is suspended below. From a mid-level of Period I A.[2]

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[1] Fairservis:1959, fig 24.316 gh Jhukar like.

[2] Stein.1929, Pl. XIV.D 27; *ibid*:1937, Pl XXV 41.

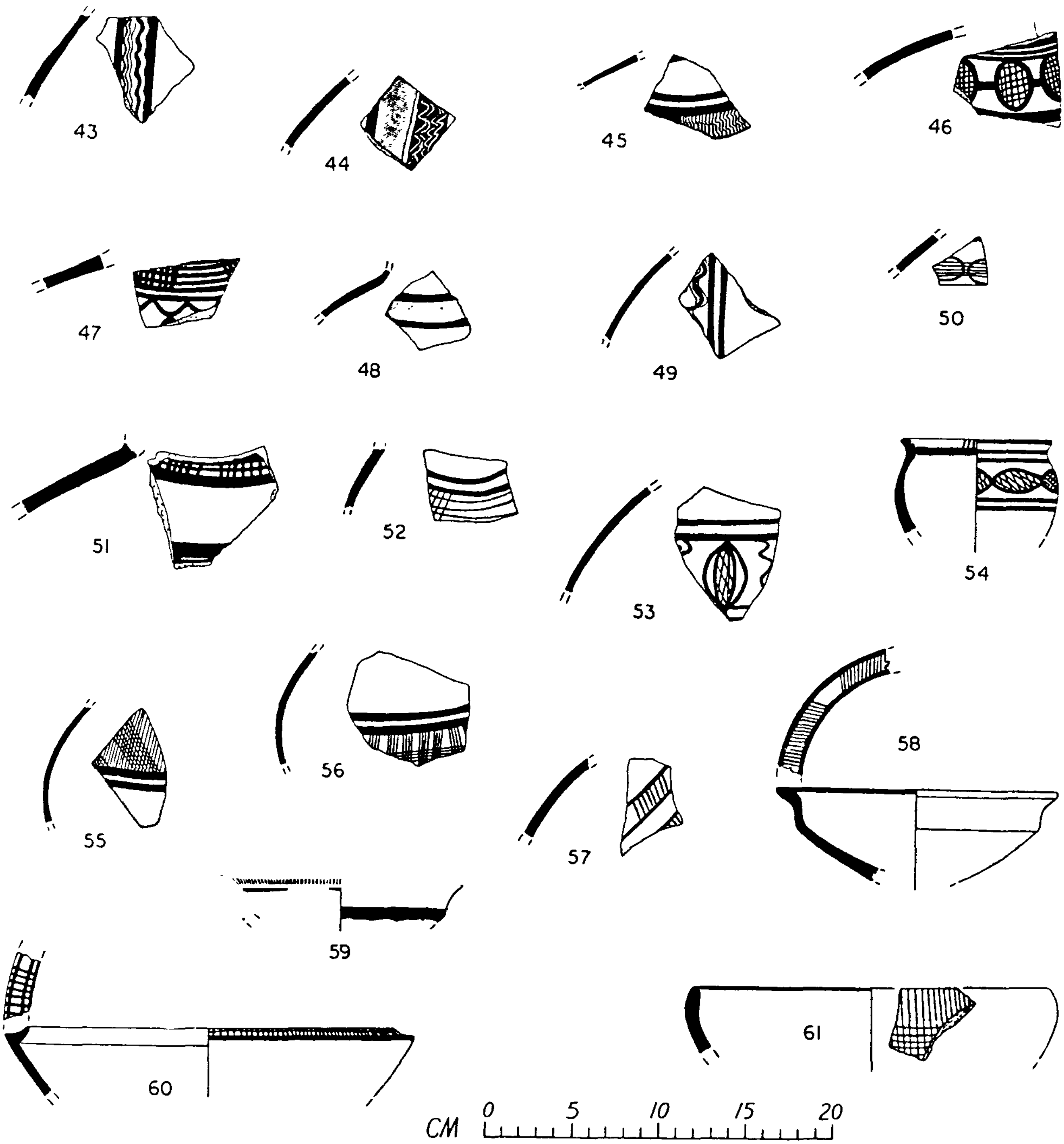


Fig. 24. Pottery.

39. A fully oxidized sherd treated with a chocolate slip over which are painted horizontal bands in white atop columns of groups of vertical and slanting lines in white over a chocolate slip. From an early level of Period I A [Pl. XXXVIII, 6].

40. A fully oxidized sherd treated on the upper half with a red wash; on the lower half over a cream slip are three horizontal bands atop a column of mat-pattern enclosed on either side by thick lines in black. From an early level of Period I A.[1]

41. An oxidized sherd with light brown core bearing a chocolate slip over which are painted columns of mat pattern in black over a white surface, enclosed within broad bands in black. From a late level of Period I A.[2]

42. A semioxidized fragment from a shoulder region of a bulbous jar treated with a dark brown slip over which are painted two horizontal bands within two wavy bands in deep brown over a white background. From a late level of Period I A.[3]

Fig. 24

43. A fully oxidized body sherd of a bulbous jar treated in the upper part with a red wash; below are two horizontal bands in black, suspended from which is a mat design enclosed within a double lined border over a cream surface. From a mid level of Period I A.[4]

44. An oxidized sherd with a tan slip over which are painted deep brown columns with vertically disposed straight and wavy lines. From a mid level of Period I A.

45. A fully oxidized sherd treated with a chocolate wash. The decoration consists of dark brown bands with suspended wavy lines in the same colour over a white background. From a late level of Period I A.

46. A semioxidized sherd treated with a thin white wash over which are painted a band of spaced circles filled in with a mat pattern and joined by a small band in light brown. Above and below are multiple lined borders. From a late level of Period I A.[5]

47. A semioxidized sherd with a light cream slip over which are painted multiple horizontal bands intersected by a group of multiple vertical lines in brown black. Below are suspended multiple, displaced loops in a mesh pattern. From a late level of Period I A.[6]

48. An oxidized sherd with a chocolate wash over which are painted two horizontal

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[1] Stein:1929, Pl XIV.D 19.

[2] *I.A.R* 1962-63, fig. D.N.Kalibangan.

[3] Fairservis:1959, figs. 339.44 u, 348.53 c Periano painted; Stein·1929. Pl XIII R 636.

[4] De Cardi:1970, fig. 17.4 (F).

[5] Fairservis:1959, fig. 335.40 a Jangal painted.

[6] *ibid.*, figs. 20.312 a Periano painted; 336.41 h Jangal painted, Majumdar: 1934, Pl. XXXII.33 Shahji Kotiro; *I.A.R.* 1962-63, fig 5.K. Kalibangan; Stein.1929, Pl. XIII.RG.8.

bands in black. The space above and below the bands is treated with a white wash. From a late level of Period I A.

49. A semioxidized sherd with grey core and interior; it is painted over red with black and white wavy lines within a broad black border. From a mid level of Period I A.

50. An oxidized sherd treated with a thin whitish wash over which are painted a horizontal band in black and below is another band of a chain pattern with lines drawn across them. From a late level of Period I A.[1]

51. A fully oxidized sherd with painted mat patterned horizontal bands in black and white over a red surface. From a late level of Period I A.[2]

52. A fully oxidized sherd treated with a red wash over which are painted horizontal bands in black and below are multiple horizontal lines crossed over by groups of slanting lines in black brown contrasting with a cream slipped background. From a late level of Period I A.[3]

53. An oxidized sherd with a light brownish surface on which is painted a horizontal band in light grey enclosed within reddish brown bands and multi-lined elliptical objects in the middle. From a late level of Period I A.

54. A semioxidized fragment of a small convex sided bowl with a small beaked rim. The interior surface, washed with red, is burnished and on the inner edge of the rim is painted a brown band. On the outside, the shoulder portion is treated with a white wash, over which is a reddish brown chain pattern extending horizontally within a double lined border. From an early level of Period I A[4] [Pl. XXXVIII, 7].

55. A fully oxidized sherd with a tan wash above which, beyond two black horizontal bands, is a cream slipped zone bearing multiple slanting lines crossed over by groups of lines in light brown colour slanting in opposite directions. From a late level of Period I A.

56. A fully oxidized body portion of a small bulbous jar with a red wash. In the middle are two thick black horizontal bands; below them is painted a light brown mat pattern on a cream slipped surface. From an early level of Period I A.

57. A semioxidized sherd decorated with a couple of black bordered columns filled with black dashes over a white background. From a late level of Period I A.[5]

58. A small, deep basin with a slightly carinated shoulder, oxidized, rounded body and splayed rim painted over with groups of multiple vertical lines on a cream slip within black bands. From an early level of Period I A.

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[1] Stein 1929, Pls XIII RG 34, XX S.J n.7

[2] Fairservis.1959; fig 18 310 a Jangal coarse

[3] *ibid.*

[4] Fairservis 1959, figs. 391.66 Jangal painted; 409.277; 410.278 Periano painted; *ibid.* 1961, figs 114 131 Emir Gray, 107 39 Gardan Reg; Sankalia et al.1969, figs 18-46 Buff; *I A R.* 1962-63, fig 3, 20 Kalibangan

[5] Fairservis.1959, fig. 24 316 gh Jhukar like

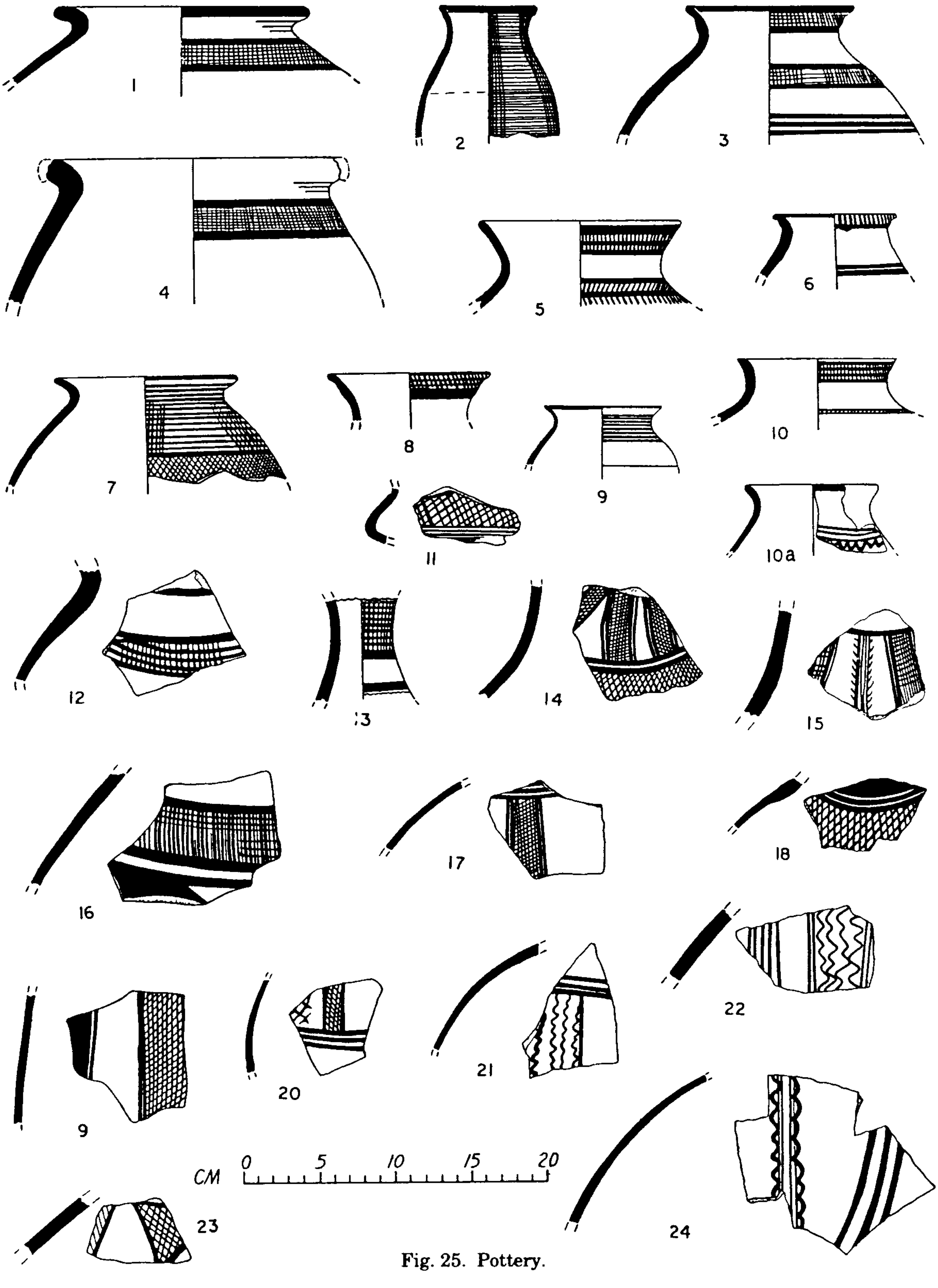


Fig. 25. Pottery.

59. A semioxidized fragment of a similar but smaller basin, with a similar painted decoration. From a mid level of Period I A.

60. An oxidized fragment of a basin with a rounded bottom, tapering sides, a featureless flanged rim and overburnt brownish core and surfaces; on the rim and the flange over a white-cream surface are painted multiple, short, vertical strokes cut in by two horizontal bands in deep brown. From a late level of Period I A.

61. An oxidized fragment of a sturdy basin with a slightly convex profile and a featureless rim. On the inside and the outside except the curved portion, the surface is treated with a yellowish red slip. On the outer surface over the reddish wash, however, a ladder is painted in deep brown. Below, over a white slipped surface, is a mat pattern painted in light brown. From a mid level of Period I A.

(iv) Black painted over red slipped ware

Fig. 25

1. A low necked storage jar with a short, beaked rim and a fully oxidized, bulbous body. Over the edge of the rim is a dark brown band and on the shoulder are two horizontal bands filled in with a mat pattern in the same colour. From a late level of Period I A.

2. A concave necked small vessel with a featureless rim and ovaloid, fully oxidized body. On the inside and outside of the rim are painted broad horizontal bands, and on the outside below these are multiple bands and further down these there are multiple horizontal lines crossed by spaced groups of vertical lines in black. From a mid level of Period I A.

3. A concave necked storage jar with a featureless rim and a fully oxidized, bulbous body. On the top of the rim is a black band and on the outside of the rim and the shoulder there are two horizontal bands filled in with spaced groups of short vertical lines. A little below is a band composed of three thick horizontal lines. Paintings are in black. From a mid level of Period I A.[1]

4. A low necked storage jar with perhaps a clubbed rim and a bulbous, fully oxidized body treated on both the surfaces with a red wash. On the shoulder is a broad mat filled horizontal band in black. From a late level of Period I A.

5. A concave necked storage jar with a featureless rim and fully oxidized, bulbous body. Over the rim and shoulders are triple lined horizontal bands filled in with short vertical strokes in black. From a late level of Period I A

6. A low necked storage jar with a short out-turned beaked rim and fully oxidized bulbous body treated with a bright red wash upto the inner rim . On the edge of the rim and below are double lined horizontal bands in black, in the former case, filled with short vertical strokes. From a late level of Period I A.

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[1] Fairservis 1959, fig. 18.310 a Jangal coarse

7. A low necked jar with a short out turned featureless rim and fully oxidized, bulbous body treated on the outside with a deep red wash. From the edge of the rim to the shoulder it is decorated with multiple horizontal bands crossed over by spaced groups of vertical lines and below them is a cross-hatched mesh pattern in black. From a late level of Period I A.

8. A low concave necked jar with a featureless rim and fully oxidized, bulbous body treated with a red wash on the outside and partly on the inside and the rim. On the outside it is decorated with a mat patterned horizontal band in black. From a mid level of Period I A.

9. A concave necked small jar with a featureless rim and a fully oxidized bulbous body. On the edge of the rim and over the shoulder region are painted multiple horizontal bands in black. From a mid level of period I A.

10. A low necked jar with an almost vertical featureless rim and fully oxidized bulbous body treated with a red wash on the outside. On the rim and shoulder are painted broad bands with a mat pattern in black. From a late level of Period I A.

10a. A concave necked vessel with a featureless rim, fully oxidized bulbous body treated on the outside with a red wash. Over it are painted multiple horizontal bands in black enclosing a wavy line within. From a late level of Period I A.[1]

11. A low necked small jar with a semioxidized mildly carinated body with a bright red wash on both the surfaces. On the outside a mesh filled band within horizontal border lines is painted in black. From a late level of Period I A.

12. A low necked vessel with a fully oxidized, bulbous body bearing a thick black band on the neck and a broad mat-patterned band on the shoulder in black. From a late level of Period I A.[2]

13. A high concave sided narrow neck probably of a bulbous jar with a semioxidized core. The outer surface is treated with a pinkish-buff slip and bears broad mat-patterned bands in black. From a late level of Period I A.

14. A high tapering and narrow neck probably of a bulbous jar with a fully oxidized core and red slip on the outer surface. Over it are painted vertical columns of mat-patterns enclosed within a double lined border in black below which, separated by a double lined horizontal band, is a mesh band all over the shoulder region. From an early level of Period I A.[3]

15. A fully oxidized fragment of a similar shaped vessel treated over with a red slip.

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[1] Fairservis.1959, figs 334.31 e Jangal coarse, 336.41 i, 348.53 a Periano painted

[2] *ibid.*, figs 20.312 e Periano painted; 390.50 Jangal painted, De Cardi:1965, figs 13.18, 19; 14.34 Siah II.i.

[3] *ibid.*, fig. 14.40 Siah II i, Mackay 1943, Pls XXX 2, 3, 4 etc., XXXVII 30.

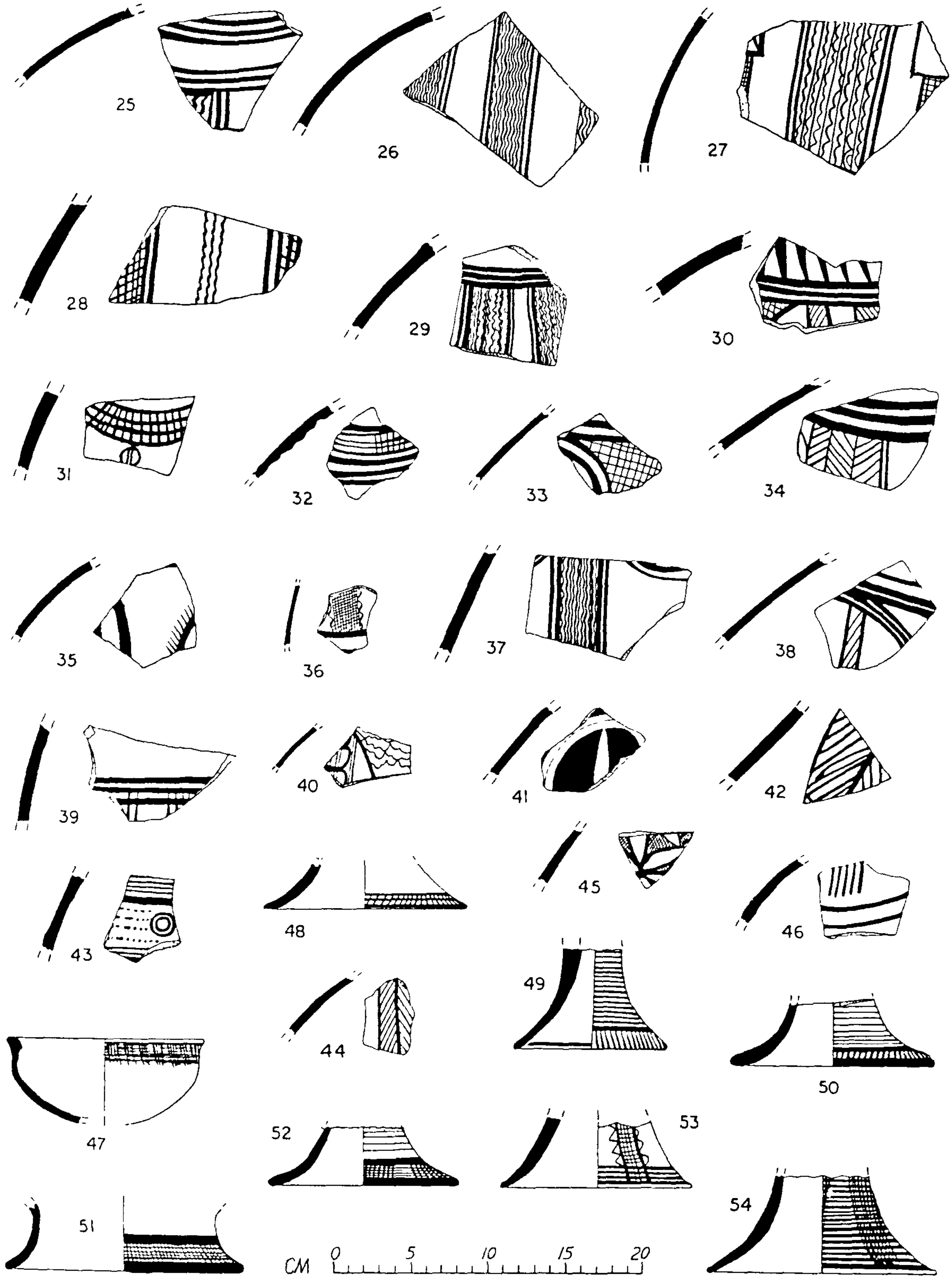


Fig 26. Pottery.

Over it is painted a panel of mat-patterned columns, alternating with an attached multiple lined column with slanting strokes on either side, within black horizontal bands above and below. From a mid-level of Period I A.[1]

16. A fully oxidized sturdy sherd with a red wash over which are painted mat patterned and solid horizontal bands in black. From an early level of Period I A.

17. An oxidized sherd with a red wash over which is painted a double lined horizontal band from which hangs a broad mat patterned column in black. From a late level of Period I A.[2]

18. A fully oxidized sherd from the shoulder region of a bulbous vessel treated with a red slip. It is painted over in black with a solid horizontal band, below which the surface is completely filled with a mesh pattern. From a mid level of Period I A.[3]

19. An oxidized sherd treated with a dark tan wash over which are painted columns of a mesh pattern alternating with solid ones in black. From an early level of Period I A.

20. A fully oxidized sherd treated with a light brownish wash over which are painted multiple horizontal bands supporting a medium broad mesh filled column and another mesh pattern with curved outlines in dark brown. From a mid level of Period I A.

21. A fully oxidized sherd with a blotchy red washed surface. It is painted over with a triple lined band from which hang multiple wavy lines within a straight lined border in black. From an early level of Period I A.[4]

22. A fully oxidized sherd treated with a red slip over which is painted a column of wavy lines within a double lined border alternating with multiple vertical lines in black. From a late level of Period I A.[5]

23. A fully oxidized sherd treated with a red wash, over which are painted pendant triangles in black filled alternatively with a mesh pattern and slanting strokes. From a mid level of Period I A.[6]

24. A fully oxidized sherd treated with a red wash, over which is painted a triple lined arch having a multiple lined column in the middle, bordered on either side with wavy lines in black. From an early level of Period I A.

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[1] Mackay 1943, Pl. XXXVII. 28, 29.

[2] Fairservis 1959, fig 390.51 Jangal painted

[3] Stein 1959, Pl XXI 9

[4] De Cardi 1965, fig 16.24 Siah II ii; Fairservis 1959, fig 341.46 1 Periano painted; Stein 1929, Pl XX S.J. iii 3,4

[5] De Cardi: 1965, fig 16.24 Siah II ii, Fairservis 1959, fig. 341.46 1 Periano painted: Stein 1929, Pl XX.S.J iii 3,4

[6] Fairservis: 1959, fig 339.49 f Periano painted, *I A R* 1960-61, Pl. XL A Kalibangan

Fig. 26

25. A semioxidized sherd treated with a red wash, over which are painted triple lined horizontal bands in black, from which hang groups of wavy lines within straight lines. From a late level of Period I A.

26. A fully oxidized sherd treated with a red wash painted over with black columns of multiple wavy lines with double lined borders on either side. From an early level of Period I A.

27. A semioxidized sherd with a shining grey brown wash, painted over with dark brown columns of wavy lines alternating with straight lines and mat patterned bands. From a late level of Period I A.

28. A fully oxidized sherd treated on the outside with a red wash, over which are painted mesh filled columns with double lined borders alternating with vertically placed triple wavy lines in black. From a late level of Period I A.[1]

29. A fully oxidized sherd treated on both the surfaces with a red wash, over which on the outside are painted triple horizontal bands having suspended columns of wavy lines within double lined borders in black. From a mid level of Period I A.

30. A fully oxidized sherd treated on the outside with a red wash, over which are painted tapering vertical solid bands over a triple lined horizontal band, from which are suspended columns filled in with slanting lines and pendant triangles with mesh-hatchings in black. From a late level of Period I A.[2]

31. A fully oxidized sherd with a red wash, painted over with a mat patterned horizontal band from which a chain having a vertical line across in black is suspended. From a late level of Period I A.[3]

32. A semioxidized sherd with a dusty red wash, over which are painted multiple horizontal bands crossed by a group of vertical lines in deep red. From an early level of Period I A.

33. A semioxidized sherd with a red wash, over which is painted a double-lined arch below a similar horizontal band in black. The triangular space of the column is filled with mat like hatchings in black. From a mid level of Period I A.[4]

34. A fully oxidized sherd with a red wash, over which are painted multiple lined horizontal bands atop a panel divided into many vertical zones filled with lines slanting in different directions over a blotchy surface in black. From a late level of Period I A.[5]

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1 Fairservis: 1956, fig. 292.248-9 Quetta Ware.

2 Fairservis. 1959, fig. 390.53 Jangal painted; *ibid.*, 1961, fig. 106.35 Gardan Reg.

3 Fairservis: 1959, fig 388.25 KGM Black over Red.

4 *I.A.R.* 1962-63, fig. 2.N.Kalibangan.

5 Stein: 1931, Pl. III. J.D.3.

35. A fully oxidized sherd treated with a red wash, over which are drawn, below a horizontal band, arches plain or with radiating lines like a sun motif in black brown. From a late level of Period I A.[1]

36. A fully oxidized sherd with a red wash, over which twin horizontal bands are painted in brown-red supporting a column of mat patterns within borders of wavy lines. From a late level of Period I A.

37. A semioxidized sherd with a red wash, over which a column of wavy lines is drawn within a double lined border having a similar circle on either side in black. From a late level of Period I A.

38. A semioxidized sherd with a triple lined horizontal band atop an arch having a column filled in with slanting lines in black. From an early level of Period I A.[2]

39. A fully oxidized sherd with a bright red wash, over which are painted three horizontal bands spaced above groups of vertical lines in black. From a late level of Period I A.

40. A fully oxidized sherd with a red wash, painted over with a vertically placed chain pattern with lines across and on the sides and horizontal wavy lines within triangles in black. From a late level of Period I A.[3]

41. A semioxidized sherd with a dull red surface having a circle filled with solid semicircular spaces in black. From the upper levels of Period I A.[4]

42. A fully oxidized sherd with a red wash, over which are painted lines slanting in different directions along with a central line in black. From an early level of Period I A.

43. A semioxidized sherd with a black core having grey green burnt surface painted with horizontal bands above dotted horizontal bands and double lined circles in black. From a mid-level of Period I A.

44. A fully oxidized sherd with a red wash, over which are painted lines slanting in opposite directions along and within lines in black. From a late level of Period I A.

45. A fully oxidized sherd with a red slip over which are painted intersecting circles with hatched triangular spaces in black. From a late level of Period I A.[5]

46. A fully oxidized sherd with a bright red slip, over which are painted multiple vertical strokes above a double lined horizontal band in black. From a late level of Period I A.[6]

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[1] *I.A.R.*, 1962-63, fig 2.V Kalibangan

[2] *I.A.R.*, 1962-63, fig 2.11 Kalibangan

[3] Stein, 1936, Pl XXV 41.

[4] *ibid.*, Pl XXVII 31.

[5] Mackay: 1943, Pl XLVI.13 Jhukar

[6] Fairservis 1959, fig 388.24 KGM Black over Red, *ibid.* 1961 fig. 106.28, 31 Gardan Reg.

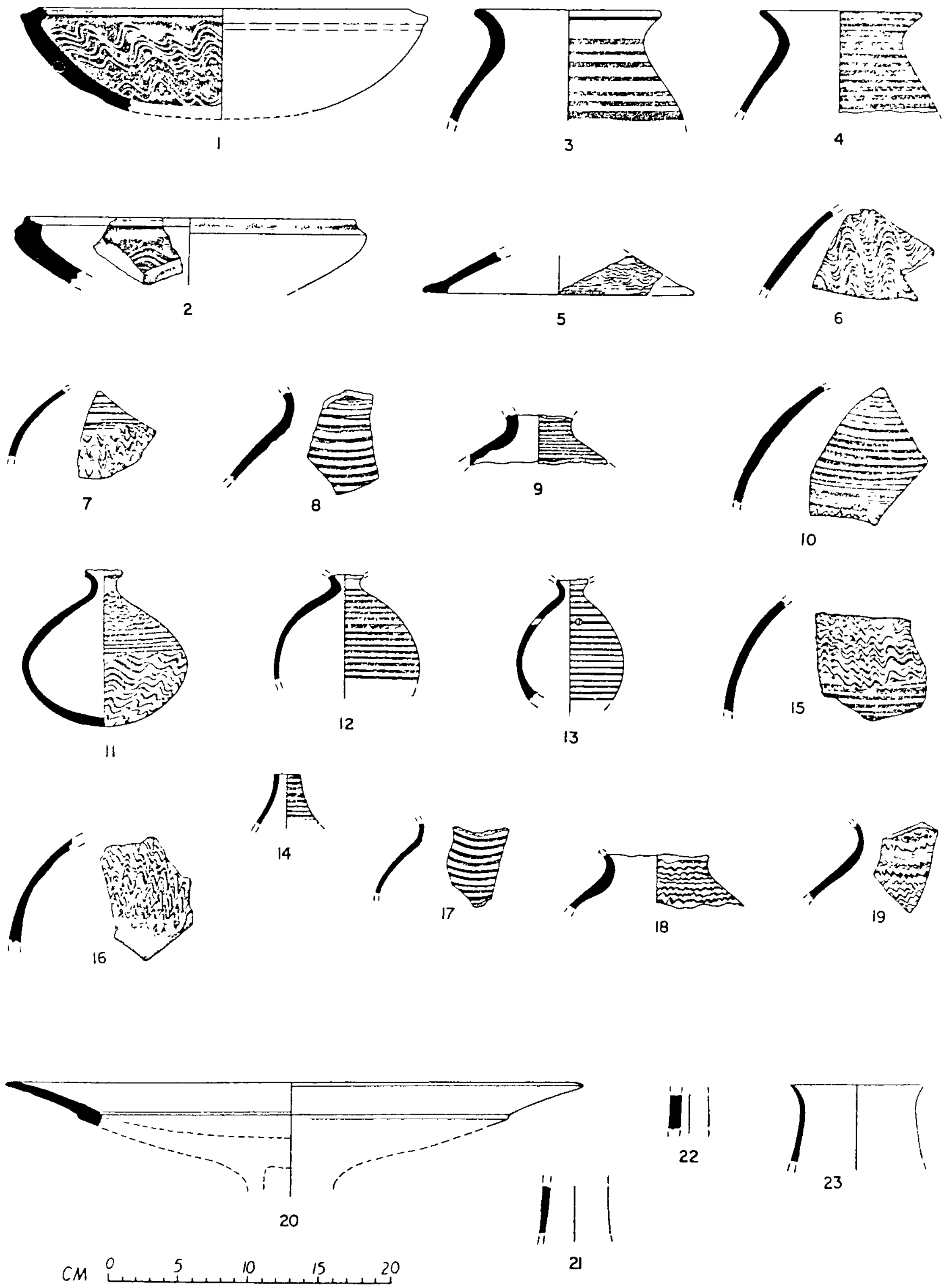


Fig. 27. Pottery.

47. A semioxidized bowl with almost straight sides, an internally thickened rim and a slightly carinated profile. Over the dusty red surface of the sides is painted a mat patterned band in dark brown black. From an early level of Period I A.

48. A fully oxidized fragment of the splayed-edged base of the stem of a dish/bowl-on-stand treated with a red slip, over which is painted a narrow band filled in with a mat pattern in black. From a late level of Period I A.

49. A fully oxidized splayed cylindrical bottom of a bowl-on- stand. Over the red wash is a single band on the inner side of the edge and multiple horizontal bands above a band comprising short vertical strokes on the edge in black. From a late level of Period I A.

50. But for the band on the inside and the width, same as above. From a late level of Period I A.

51. A low necked sturdy jar with an almost vertical neck and splayed out featureless rim and, perhaps, a globular body. On the outside the rim is painted over a red washed surface with a broad black band filled in with a mat-pattern. From a late level of Period I A.

52. A fully oxidized base of a dish-on-stand treated with a red slip, over which are painted multiple horizontal lines crossed on the splayed edged with spaced groups of vertical lines forming a mat pattern in black. From a late level of Period I A.

53. A fully oxidized sherd from the base of a dish-on-stand treated with a red slip on the outside and part of the inner surface. On the outside over the edge are multiple horizontal bands across which stands a column filled with a mat pattern and bordered on either side with zigzag lines in black. From a late level of Period I A.

54. A fully oxidized base of a dish-on-stand bearing multiple horizontal black bands over a red washed surface. Across them stand spaced columns of vertical lines in black. From a late level of Period I A.

(*v*) *Reserve Slipped Ware*

Fig. 27 [Pl. XXXIX]

1. A well fired hemispherical basin with a short inturned bevelled rim with an incipient flange and buff core. On the outer surface is applied a dark tan wash and on the interior are reserve slipped wavy bands in the same colour. From an early level of Period I C.

2. A small but thicker fragment of a similar formed basin treated on the outside with a red slip and on the interior with reserve slipped wavy bands in black. From a late level of Period I A [Pl. XXXIX, 4].

3. A well burnt bulbous jar with a short concave neck and a featureless rim. The core and the interior surface are grey while on the exterior are horizontal reserve slipped bands in blue-black. From an early level of Period I C.

4. A well oxidized low concave necked storage jar with a featureless rim and bulbous body, decorated on the outside with horizontal reserve slipped bands in cream over red. From an early level of Period I C [Pl. XXXIX, 6].

5. A fully oxidized fragment of a flat and internally beaked edge of the base of a dish-on-stand. On the outside it is decorated with a wavy reserve slipped pattern in dusty cream over dark tan slip. From an early level of Period I C.

6. A well baked sherd with a pinkish buff core having a wavy reserve slipped pattern in dusty-cream over a tan slip. From an early level of Period I C.

7. A well fired sherd with a grey core from a small bulbous jar having reserve slipped decorations of horizontal and wavy bands in dusty cream over a dark grey slip. From an early level of Period I B.

8. A well fired fragment of a concave necked jar with a bulbous body and grey core. The outside surface is decorated with horizontal reserve slipped bands in dusty cream over a grey slip. From a mid level of Period I C [Pl. XXXIX, 5].

9. A low narrow concave necked globular vessel having a well fired buff core. On the exterior surface are reserve slipped horizontal bands in dusty cream over a black grey slip. From an early level of Period I C.

10. A well fired fragment with a light grey core. On the exterior are horizontal and wavy reserve slipped bands in dusty cream over a black grey slip. From a late level of Period I B.

11. A concave necked, hole mouthed vessel with a well fired bulbous body and a mild carination at the waist. The outer surface is decorated with dusty cream reserve slipped horizontal and wavy bands-above and below the waist-over a tan slipped surface. From an early level of Period I A [Pl. XXXIX, 7].

12. A similar vessel with grey core and decorated with a bluish grey slip. From a mid level of Period I A [Pl. XXXIX, 1].

13. A similar vessel with a suspension hole on the shoulder. Decorated all over the outer surface with dusty cream reserve slipped horizontal bands on a bluish grey slip over an oxidized pinkish cream body. From an early level of Period I A.

14. The rim and shoulder fragment of a small gourd shaped vessel with well fired grey core. On the outside are multiple horizontal reserve slipped bands in whitish cream over a bluish grey slip. From a late level of Period I A.

15. A well fired body sherd of a bulbous vessel with a grey body, on which are painted wavy and horizontal reserve slipped bands in dusty cream over a bluish grey slip. From a late level of Period I A [Pl. XXXIX, 2].

16. A well burnt body sherd of a bulbous vessel with a grey body. On the outer surface are wavy reserve slipped lines in pinkish white over a brown slip. From a late level of Period I A [Pl. XXXIX, 3].

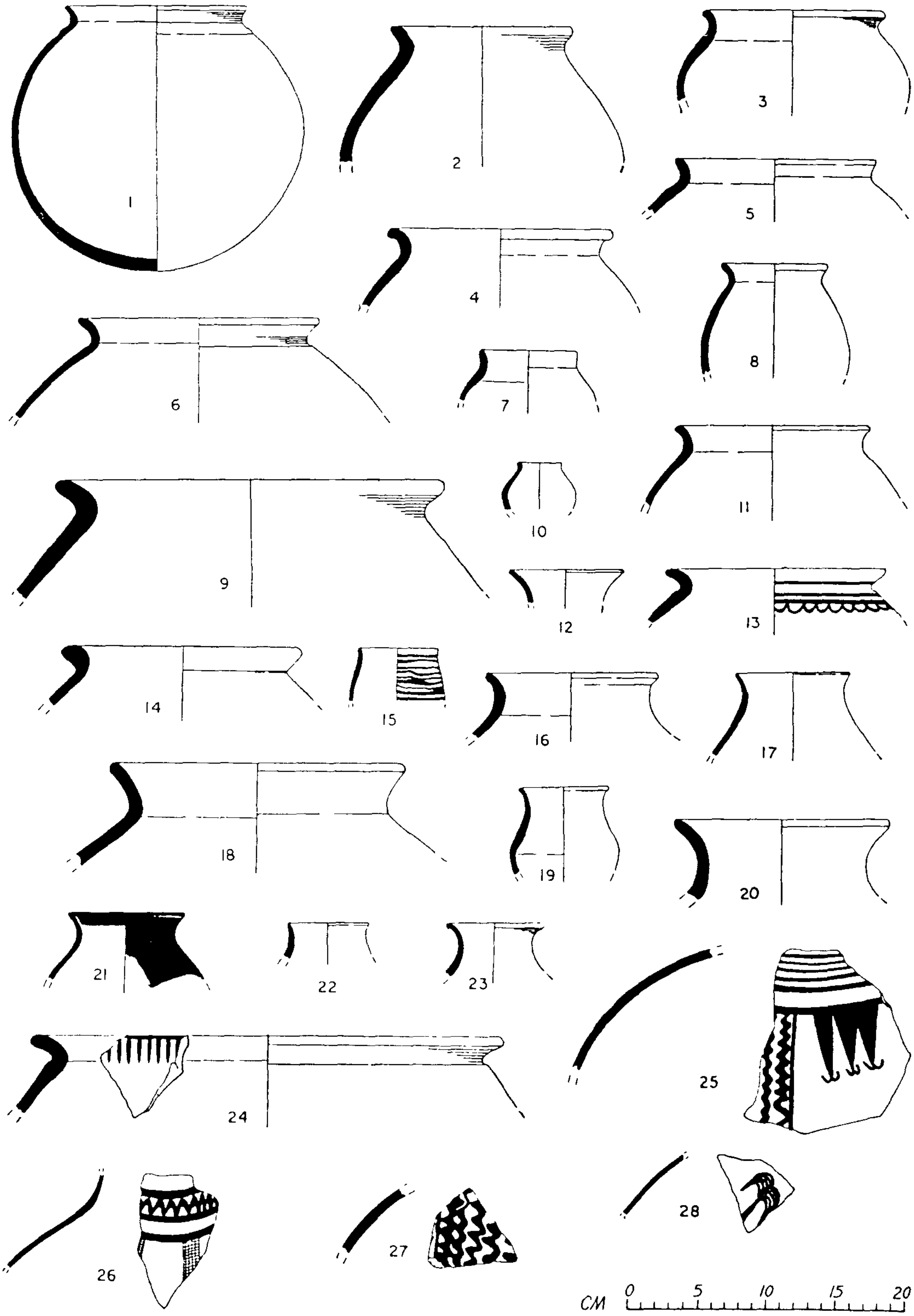


Fig 28. Pottery.

17. A fragment of a low concave necked small vessel with a bulbous body with well burnt grey core. On the outside are multiple horizontal reserve slipped bands in light grey over a dark bluish grey slip. From an early level of Period I A [Pl. XXXIX, 9].

18. A semioxidized fragment of a small concave necked wide mouthed vessel with a bulbous body and greyish core. On the outside are multiple reserve slipped smudgy wavy bands in grey over a bluish slip. From a late level of Period I A.

19. A well fired fragment from the upper region of a concave necked wide mouthed small vessel with a bulbous body. The outer surface is decorated with multiple reserve slipped wavy bands in light grey over a bluish slip. From an early level of Period I A [Pl. XXXIX, 8].

(vi) Deep burnt-Amber slipped Red ware

20. A fragment of an almost projecting rim of (probably) a carinated dish -on-stand. Well oxidized pinkish buff body is treated on both the surfaces with a thick slip, burnt amber in colour, and of a waxy feel. From an early level of Period I A.

21. A fragment of probably a cylindrical stem of a dish-on-stand. Well oxidized body treated on the outside with a thick slip, burnt amber in colour, and of a waxy feel. From a mid level of Period I A.

22. A fragment of a cylindrical stem of a dish-on-stand. Fully oxidized, it is treated on the outside with a thick slip, burnt amber in colour and waxy in feel. From a late level of Period I A.

23. A mildly concave necked wide mouthed vessel with an ovaloid body and a featureless rim. Fully oxidized, the upper part of the inside rim and outside surface are treated with a thick burnt amber slip with a waxy touch. From a mid level of Period I A.

(vii) Coarse Red Ware

Fig. 28

1. An almost neckless globular jar with a short outturned rim and a fully oxidized body. Inside, it is treated with a pinkish wash, while the outer surface is roughened perhaps by scraping and bears traces of soot marks. From a late level of Period I A.

2. A fully oxidized bulbous jar with a short outturned featureless rim. While the inner surface is treated with a pinkish wash, on the outside it is coarsened by scarping and bears soot marks. From a late level of Period I A.

3. A fully oxidized, small jar with a short out-turned featureless rim and a globular body with red washed inner and roughened soot-marked outer surfaces. From a mid-level of Period I A.

4. A semioxidized fragment of a small jar with a concave neck and short out curved beaded rim, red washed inner and outer surface roughened below the shoulder. From a mid level of Period I A.

5. A fully oxidized fragment of a bulbous vessel with a slightly out turned rim, red washed interior and a roughened exterior below the shoulder. From a late level of Period I A.

6. A fully oxidized fragment of a bulbous vessel with a short out turned rim, red washed interior and coarse red exterior. From a late level of Period I A.

7. A fully oxidized sherd of a small vessel with a bulbous body, having short vertical and featureless rim and red washed exterior and part of the interior. From a mid level of Period I A.

8. A semioxidized fragment of a small ovaloid vessel with a short out turned rim and red washed exterior. From a late level of Period I A.

9. A fully oxidized fragment of a sturdy storage jar with a short out turned rim and a bulbous body treated on the outside with a tan slip. From a late level of Period I A.

10. A fully oxidized miniature pot with a bulbous body, almost vertical rim and unwashed surface. From a mid level of Period I A.

11. A fully oxidized bulbous jar with an almost vertical beaked rim, a red washed interior and roughened outer surfaces. From a late level of Period I A.

12. An oxidized fragment probably of a small jar with a concave neck and a featureless rim. From the mid level of Period I A.

13. A fully oxidized fragment of a bulbous jar with a short out turned rim and a mild ridge on the shoulder. On the out side, over a pinkish buff wash, is painted a double lined horizontal band with a loop attached below in dark brown. From a mid-level of Period I A.[1]

14. A fully oxidized fragment of a bulbous jar with a short out turned and internally thickened rim, red washed interior and a coarse red outer surface. From a late level of Period I A.

15. A fully oxidized fragment of a miniature vessel with almost vertical sides and a featureless rim. On the outside, over a red washed surface, are multiple horizontal bands in black. From a mid level of Period I A.

16. A fully oxidized sherd of a bulbous jar with a short concave neck and a featureless rim. On the outside, traces of a red slip are in evidence. From a late level of Period I A.

17. A fully oxidized fragment of an ovaloid jar with a concave neck and a featureless rim. On the outside is given a red slip. From a mid level of Period I A.

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[1] Fairservis:1959, figs 334 39 e Jangal coarse; 336.41 i, 348.53 a Periano painted; 390.55 Jangal painted, Stein: 1939, Pl M M.N 4

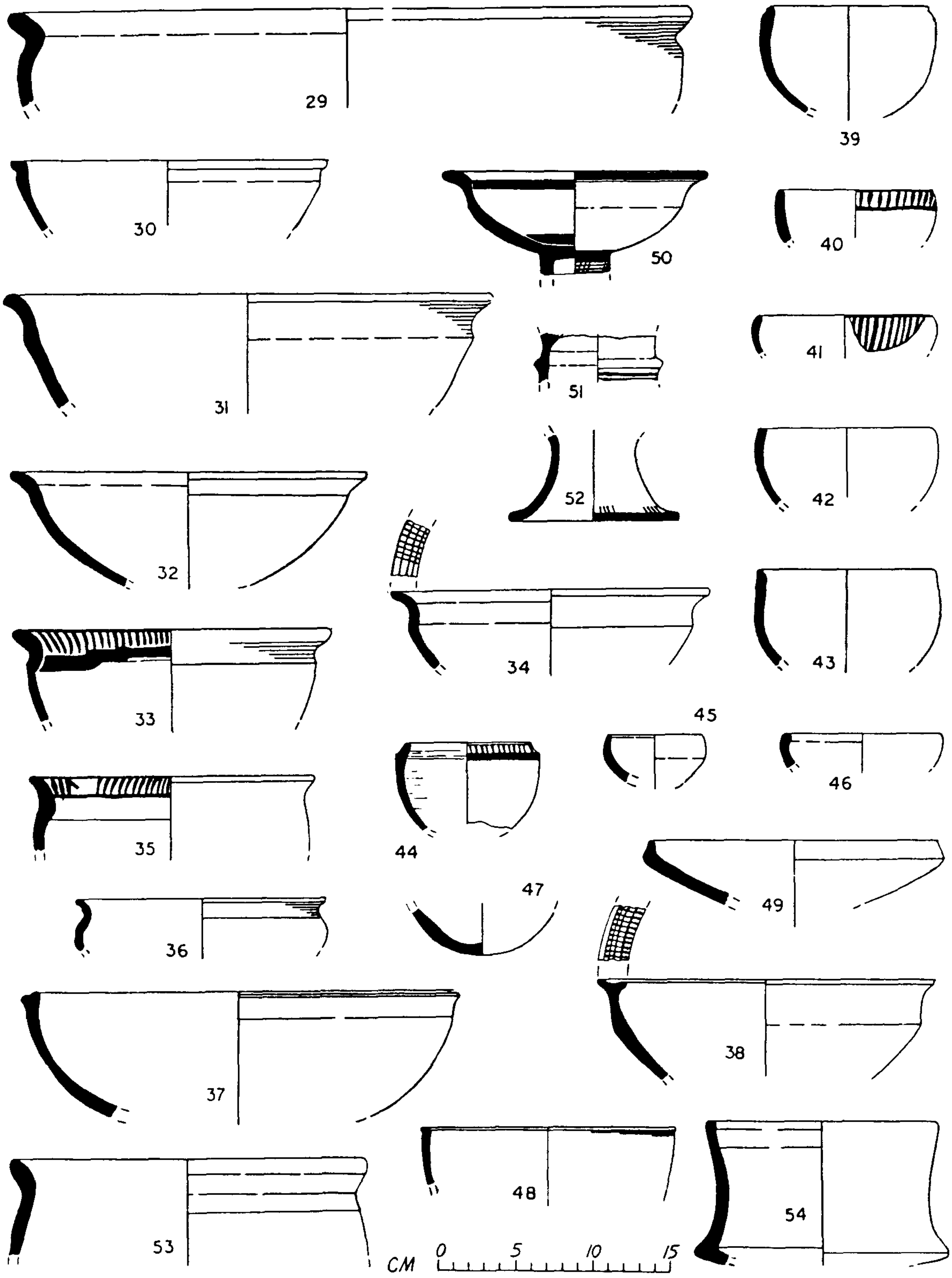


Fig. 29 Pottery.

18. A semioxidized fragment of a bulbous jar with a featureless out turned rim and a coarse red exterior. From a mid level of Period I A.

19. A fully oxidized fragment of an ovaloid jar with a concave neck and a featureless rim. The outer surface is treated with a whitish red slip which is almost non-existence due to encrustations. From a late level of Period I A.

20. A semioxidized fragment of a bulbous jar with a concave neck, wide mouth and featureless rim. Treated on the outside with a red slip. From a late level of Period I A.

21. A fully oxidized, small jar with a concave neck, featureless rim and a bulbous body. Upper part of the interior of the rim and the outer surface is treated with a dark brown slip. From a mid level of Period I A.

22. A semioxidized fragment of a small bulbous vessel with an almost vertical neck and a featureless rim. From a late level of Period I A.

23. A fully oxidized fragment of a small bulbous jar with a concave neck and a featureless rim. Treated on the outside with a dark tan slip. From a late level of Period I A.

24. A fully oxidized fragment of a bulbous jar with a short out turned rim and an incipient ridge on the shoulder. Both the surfaces are treated with a red slip, over which are painted short black strokes on the inner rim. From a late level of Period I A.

25. A semioxidized fragment of a bulbous body treated on the interior with yellowish red and on the exterior with red wash. On the outside, below a multiple lined horizontal band, are painted a group of three pendant triangles with hooks below and a column of vertical wavy lines within a straight lined border in black. From a late level of Period I A.[1]

26. A semioxidized fragment of an ovaloid jar with a red slip outside, over which are painted horizontal bands filled with a zigzag line and a standing column with a mat pattern. From a late level of Period I A.

27. A fully oxidized sherd with a yellowish wash on the inside and a red slip outside, bearing vertically placed zigzag lines. From a late level of Period I A.

28. A semioxidized sherd with a red wash outside, over which is painted a fly whisk pattern. From a late level of Period I A.

Fig. 29

29. A fully oxidized deep basin with an out turned and thickened rim and an incipient ridge on the shoulder. Red washed surface. From a late level of Period I A.[2]

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[1] Vats: 1940, Pl. XLV. 23,24.

[2] Rao.: 1962, fig. 24.107.

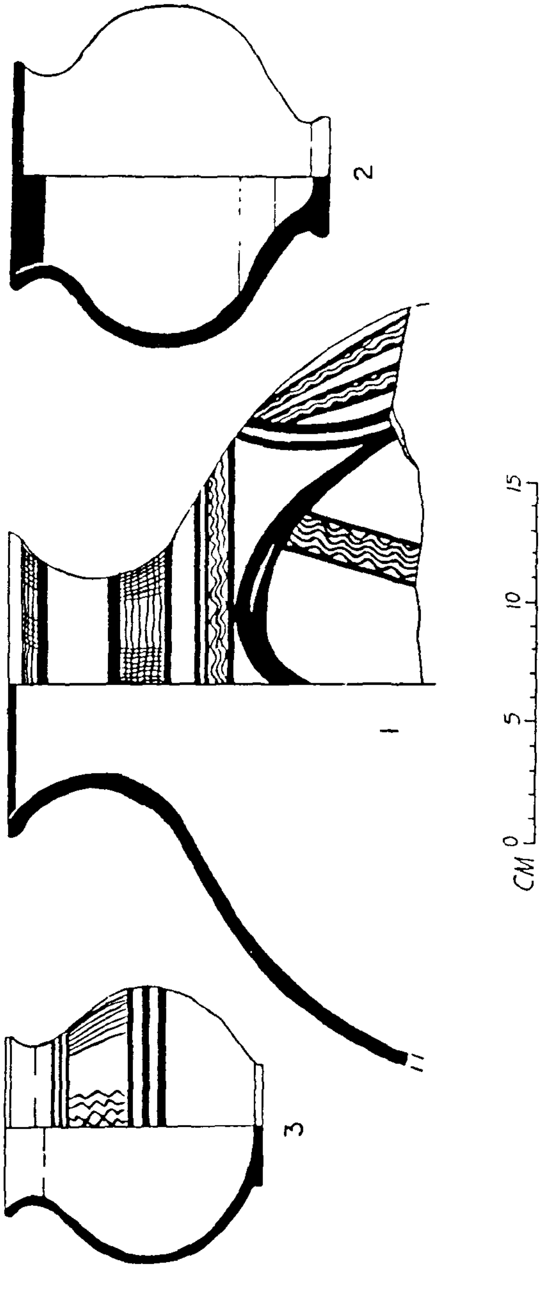


Fig 30 Pottery.

30. A fully oxidized piece of a small deep basin with a flat-topped clubbed rim and a slight carination on the shoulder. Treated on both the surfaces with a deep red slip. From a late level of Period I A.

31. A deep basin with a splayed beaked rim and a slightly carinated shoulder. Semioxidized body is treated on both the surfaces with a red-wash. From a late level of Period I A.

32. A fully oxidized fragment of a deep basin with an out curved, externally bevelled rim and a slightly carinated shoulder. Treated on both the sides with red wash. From late level of Period I A.

33. A fully oxidized deep basin with an out curved beaked rim and a slightly carinated shoulder. Treated with a black wash outside and a red wash inside, over which the rim is painted in black. From a late level of Period I A.

34. A fully oxidized deep basin with an out curved rim and a slightly carinated shoulder. On both the surfaces is given a red wash over which on the rim is a mat patterned band all around. From a late level of Period I A.

35. A fully oxidized deep basin with an out curved rim painted over red wash with a ladder pattern comprising horizontal bands enclosing short vertical strokes. From a late level of Period I A.

36. A fully oxidized fragment of a deep small basin with an out turned rim and a bluntly carinated profile. Treated on the outside with a red wash. From a late level of Period I A.[1]

37. A fully oxidized deep basin with a nail headed rim and a red wash over the two surfaces. From a late level of the Period I A.

38. A fully oxidized deep basin with a concave topped nail headed rim and a bluntly carinated profile. The surfaces are treated with a red wash. The rim top is decorated with a mat patterned band all around. From a late level of Period I A.

39. A fully oxidized deep bowl with a convex profile and a featureless rim. Treated on both the surfaces with a red wash. From a late level of Period I A.

40. A semioxidized fragment of a deep small bowl with a convex profile and a featureless rim, painted over in black with double horizontal bands filled in with short vertical strokes. From a late level of Period I A.

41. A semioxidized small bowl of similar shape with red wash on the exterior, painted over in black with multiple vertical strokes. From a late level of the Period I A.

42. A fully oxidized, convex sided bowl with a flat topped rim, treated on both the surfaces with a red wash. From a late level of the Period I A.

43. A fully oxidized bowl with almost vertical sides and an internally thickened rim, treated on the two surfaces with a brown wash. From a late level of Period I A.

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[1] Rao:1962, fig 42.86.

44. A deep bowl with a thickened, externally pinched rim and a semicircular profile with a fully oxidized body treated externally with a deep red slip. On the rim are painted short vertical strokes in black above a broad band. From a late level of Period I A.

45. A fully oxidized, miniature bowl with a convex profile. From a mid level of Period I A.

46. A semioxidized, miniature bowl with a thickened, externally bevelled rim and a curved profile with traces of a brown wash over the surfaces. From a late level of Period I A.

47. A semioxidized rounded bottom of a deep bowl. From a late level of Period I A.

48. A fully oxidized bowl with tapering sides, rounded bottom and an thickened, externally beaked rim treated with a red wash. From a late level Period I A.

49. A semioxidized fragment of a round bottomed, tapering sided dish or shallow bowl with an short inturned featureless rim. On the interior surface, traces of dark brown wash are visible. From a late level of Period I A.

50. An almost fully oxidized bowl with a bluntly carinated shoulder and a splayed rim, standing on a cylindrical stand. Treated on both the surfaces with a tan wash over which are painted horizontal black bands on the rims, exterior and interior and on the junction with the pedestal, over which are multiple horizontal lines crossed by spaced groups of short vertical lines. From a late level of Period I A.

51. A fully oxidized upper part of a cylindrical stem of a dish/bowl-on-stand with a ridge. On the outside it is treated with an ocherous wash over which, below the ridge, are painted black horizontal bands. From a late level of Period I A.

52. A semioxidized fragment of a concave sided base of a dish/bowl-on-stand. Over the reddish buff exterior are painted short, spaced strokes over a black band on the edge. From a late level of Period I A.

53. An almost fully oxidized fragment of a deep basin with almost vertical sides and a short, thick outturned rim. Both the surfaces are treated with a red slip. From a late level of Period I A.

54. A fully oxidized fragment of a concave sided bowl with a rounded rim having a shallow groove inside and a sharp carination near the rounded base. Treated with a red wash. From a late level of Period I A.

Fig. 30

1. A concave necked, bulbous, red slipped ware jar with a featureless rim and a well oxidized body, treated on the outside with a red wash. It is decorated in black on the rim, neck and shoulder with patterns comprising multiple thin wavy lines with broad borders. In the first two instances, spaced groups of vertical lines are drawn across them. Below

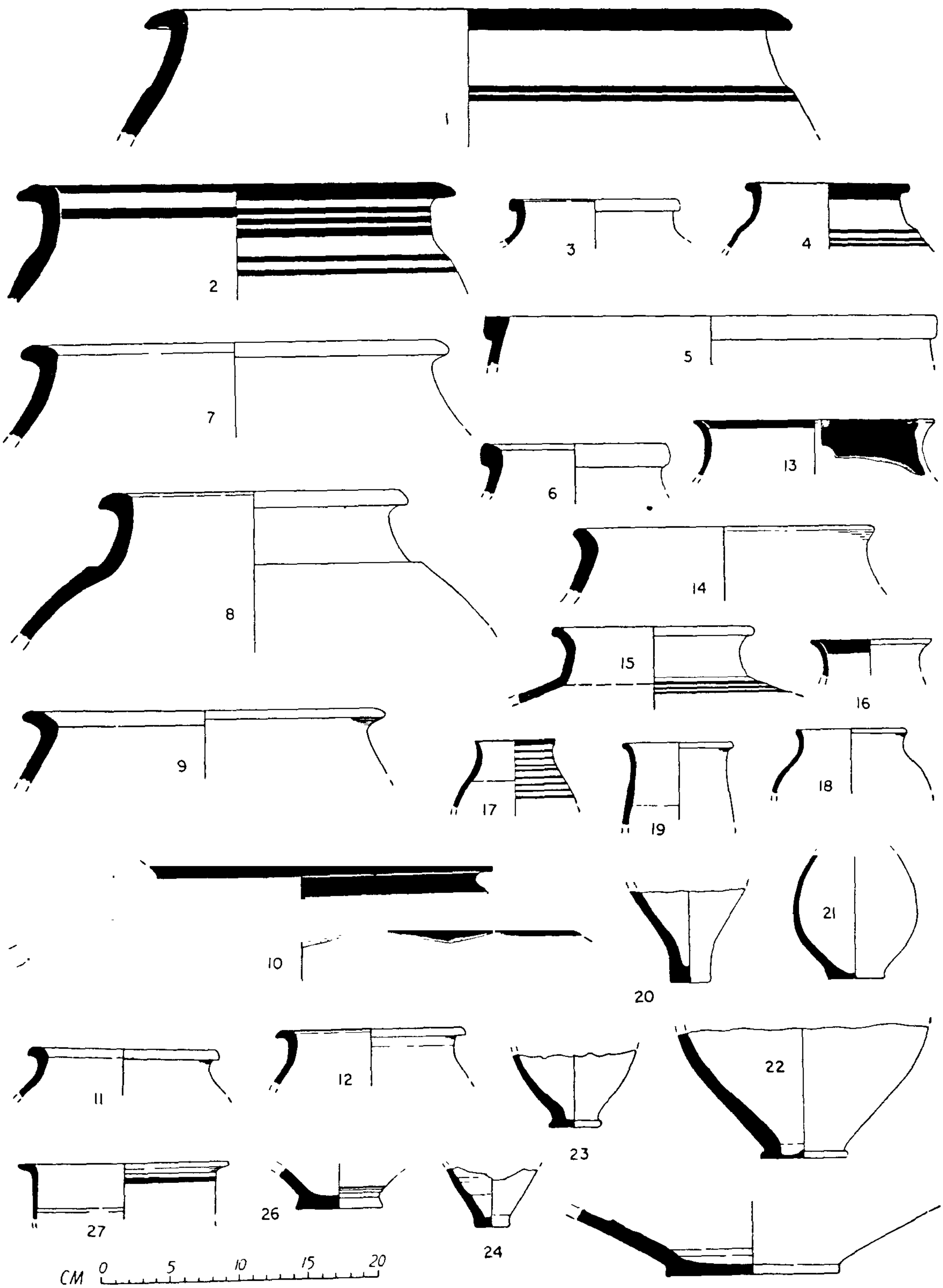


Fig. 31. Pottery.

the shoulder band are double lined arches having oblique columns filled with vertical wavy lines. From a late level of Period I A.

2. A low necked, small Harappan jar with a short outcurved featureless rim, a low footed disc base and a semioxidized, bulbous body with a red washed blotchy exterior surface. Interior of the rim is treated with a dark brown black band. From a mid level of Period I A.

3. A low necked small course red ware jar with a short outcurved featureless rim, a flat disc base and a fully oxidized, bulbous body treated on the outside with a red slip. It is painted in black with triple lined bands on the shoulder and waist, the intervening space being filled with alternately spaced groups of vertical wavy and straight lines. From a late level of Period I A.

2. PERIOD I B

(i) Harappan Ware

Fig. 31

1. A low necked sturdy storage jar with a short projected rim and a bulbous body with an incipient ridge over the shoulder. Fully oxidized, the outer surface and part of the inner neck are treated with a red slip over which are painted on the rim and the shoulder ridge black horizontal bands. From a mid level of Period I B.[1]

2. A low necked sturdy storage jar with a short, projected rim and a bulbous fully oxidized body with an incipient ridge over the shoulder. It is treated on the outside with a light tan slip over which are painted multiple horizontal bands in black. From a mid-level of Period I B.[2]

3. A low necked jar with a square collared rim and globular body. The fully oxidized body is treated on the outside with a dark red slip. From a late level of Period I B.[3]

4. A low necked jar with a short projected rim and globular body. Fully oxidized body bears on the outside a red slip over which are painted horizontal bands is black. From a late level of Period I B.

5. A low necked jar with a folded collared rim and bulbous body. Fully oxidized, the outer surface is treated with a light red wash. From a late level of Period I B.[4]

6. A low necked jar with a collared rim and bulbous body, fully oxidized and treated with a dark tan slip on the rim and outside. From a late level of Period I B.[5]

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[1] Khan 1965, figs 12.1-5, 13.14, 25.20 (H), *I.A.R* 1957-58, fig 2, Bhagatrav

[2] *ibid*

[3] Rao 1962, fig 24.94 b

[4] *ibid* figs 29.34 a 30.43, *I.A.R.* 1958-59, fig 9A.11, Rojdi

[5] Rao 1962, fig 30.53

7. A low necked sturdy jar with a short projected rim and a bulbous body with a fully oxidized core and red washed surfaces. From a late level of Period I B.[1]

8. A low necked sturdy storage jar with a short beaked rim and a bulbous body with an incipient ridge over the shoulder. Fully oxidized core, the inner part of the neck and the outer surface are treated with a dark black brown slip. From a late level of Period I B.[2]

9. A low necked sturdy jar with a short splayed rim and bulbous, fully oxidized body, treated on the outside with a red slip. From a late level of Period I B.[3]

10. A low necked sturdy jar with a short beaked rim and a bulbous, fully oxidized body treated on the outside and partly on the inside with a blackish slip. From a late level of Period I B.

11. A low necked small jar with a short beaked rim, bulbous semi oxidized body treated with a brown wash. From a late level of the Period I B.[4]

12. A low necked small jar with a short projected rim and fully oxidized bulbous body, treated with a light brown slip. From an early level of Period I B.

13. A short concave necked jar with a featureless rim and fully oxidized bulbous body, treated on the inside of the rim and on the outside surface with a black slip. From an early level of Period I B.

14. A low necked jar with a short outturned rim and a bulbous fully oxidized body, treated on the outside with a red wash. From an early level of Period I B.

15. A low necked jar with an out turned rim, an inturned sloping neck and fully oxidized bulbous body. On the outside, the surface is treated with a red slip over which are painted multiple horizontal bands in black. From an early level of Period I B.[5]

16. A concave necked small vessel with a bright red slip on both the surfaces. On the inside rim there is a broad band in black. From a late level of the Period I B.

17. A low concave necked miniature jar with a featureless rim, bulbous, fully oxidized body and the rim treated on the inside and outside with a red slip over which are multiple horizontal bands painted in black. From an early level of Period I B.[6]

18. A concave necked jar with a short, externally bevelled rim and a globular over burnt black body. From an early level of Period I B.

19. A longer necked bulbous vessel with a short, out-turned, externally bevelled rim

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[1] Rao: 1962, fig 18.2 (IIA); *I.A.R.* 1958-59, fig. 9A.3, Rojdi.

[2] *ibid.*, fig 9A.9, Rojdi

[3] Rao: 1962, fig. 19.30

[4] *I.A.R.* 1958-59, fig 9A.12, 16, Rojdi.

[5] Rao: 1962, fig 18.11 (IIA)

[6] *ibid.*, fig. 18.20 (IIA)

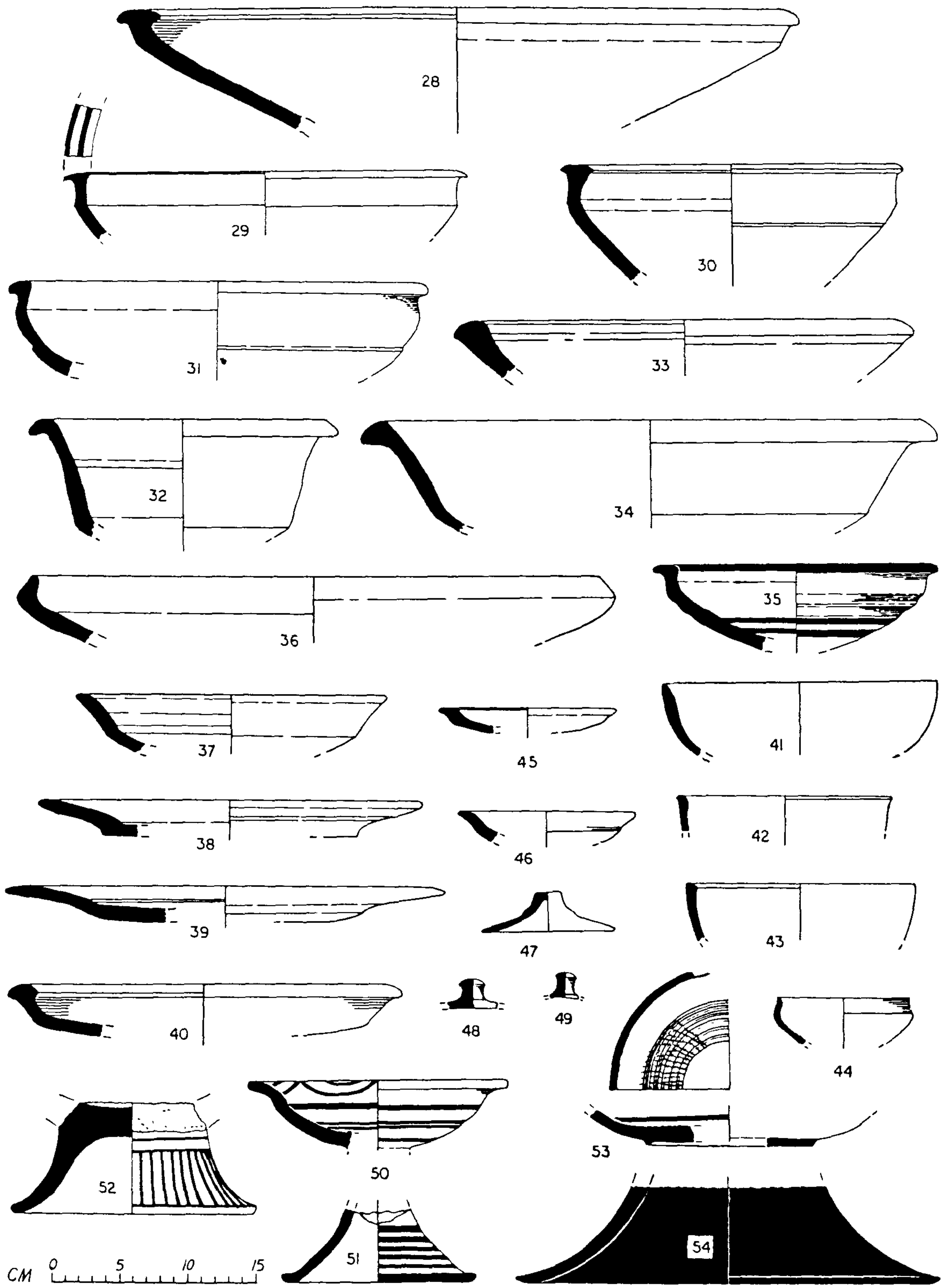


Fig 32. Pottery.

and fully oxidized body. It is treated on the outside with a whitish red slip. From a late level of the Period I B.[1]

20. A flatfooted base of an 'Indus Goblet', fully oxidized and treated externally with a deep red slip. From an early level of Period I B.[2]

21. A flatbased bulbous goblet with fully oxidized body with a red slip on the outside. From a late level of Period I B.

22. A broad string cut disc based goblet, semi oxidized, bulbous body treated on the outside with a red slip. From a late level of Period I B.

23. A string cut disc based goblet with an oxidized bulbous body, much encrusted at present. From a late level of Period I B.[3]

24. A flat short footed base of an 'Indus Goblet', fully oxidized and treated with a red slip on the outer surface. From a late level of the Period I B.

25. A flat string cut projected base of a large jar with bulbous, fully oxidized body treated with a deep red slip on the outside. From an early level of Period I B.[4]

26. A flat string cut projected base of a large goblet with a fully oxidized body treated on the outside with a red wash. From an early level of Period I B.

27. A short projected rim and straight sides probably of an ovaloid vessel. Fully oxidized and treated on the outside with a red slip, over which are painted multiple black bands. From an early level of Period I B.[5]

Fig. 32

28. A deep sturdy basin with a nail headed rim and a blunt carination above the sloping side. Fully oxidized, treated on the inside with a red wash while the outer surface is coarse red. From an early level of Period I B.[6]

29. A deep basin with a nail headed rim and a blunt carination above the sloping side. Fully oxidized body is treated on the inside with a brown wash and on the outside with a red wash over which are painted two black bands on the rim. From an early level of Period IB.[7]

30. A similar but deeper basin; fully oxidized body is treated on both the surfaces with a dark brown slip. From an early level of Period I B.[8]

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[1] Mackay:1943, Pl. XXVI.70.

[2] *ibid.*, Pls XXVI.73; XXIX.36A; Casal 1964, fig. 61 191 (IC); Rao: 1962, fig. 23.83 b.

[3] Mackay.1943, Pl XXVI 68.

[4] Khan. 1965, figs. 24.17, 18.16, 7 (PH).

[5] Rao: 1962, fig. 18 19 (IIA).

[6] Khan: 1965, fig. 22 3 (PH)

[7] Casal: 1964, fig. 79.347 (IIIB).

[8] *ibid*, figs. 69.273 (IIB), 73 314 (IIIA).

31. A deep basin with beaked rim, convex sides and rounded bottom with a groove at the junction. Fully oxidized body is treated with a whitish wash. From an early level of Period I B.

32. A deep basin with a short projected and drooping rim, slightly tapering sides carinated at the junction with the rounded base. Fully oxidized body is treated on both the surfaces with a red slip. From a late level of Period I B.

33. A deep basin with a clubbed rim and tapering sides and fully oxidized body. It is treated on both the surfaces with a red slip. From an early level of Period I B.[1]

34. A deep trough shaped and very broad basin with a beaked rim and tapering sides and semioxidized body. The two surfaces are treated with a red slip. From an early level of Period I B.[2]

35. A deep basin with a short projected rim, bluntly carinated profile and a mildly grooved concave bottom and semioxidized body. Both sides are treated with a red slip over which are painted horizontal bands in black. From a mid level of Period I B.

36. A deep basin with an inturned featureless rim, tapering sides and fully oxidized body. It is treated over with red slip. From an early level of Period I B.[3]

37. A dish with a splayed out, internally thickened rim and carinated profile. Fully oxidized, the body has a thick, deep red slip. From an early level of Period I B.[4]

38. A shallow dish with splayed out rim, a sharply carinated profile and fully oxidized body. It is treated over both the surfaces with a deep red slip. From a late level of Period I B.[5]

39. A shallow dish with a splayed out rim, bluntly carinated profile and fully oxidized body. It bears red slip on both the surfaces. From a late level of Period I B.

40. A shallow dish with a nail headed rim, carinated profile and fully oxidized body. It is treated with brown red slip. From a late level of Period I B.[6]

41. A hemispherical bowl with an internally thickened sharp rim and fully oxidized body. It is treated with a tan slip on both the surfaces. From a late level of Period I B.[7]

42. A hemispherical bowl with an externally beaked and internally thickened rim with fully oxidized body. It is treated over with a red wash. From an early level of Period I B.

43. A hemispherical bowl with an internally thickened rim and fully oxidized body. It is treated over with brown slip. From a mid level of Period I B.

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[1] *I A R* 1958-59, fig 9A 7-8 Rojdi, Rao 1962, fig 22 33 b

[2] *ibid.*, fig 21 43, 61, 61, Mackay 1937, Pl LII 15, Casal: 1964, fig 72.309 (IIIA)

[3] *ibid.*, fig 79 351 (IIIB)

[4] *ibid.*, fig 67 254

[5] *ibid.*, fig 22 67 a, Mackay 1937, Pls. LXV 37, LX 13 ; Casal: 1964, fig. 72 308 (IIIA).

[6] *ibid.* fig 79 348 (IIIB), Rao 1962, fig 23 70 b

[7] *ibid.*, fig 21 49 (IIA), Khan 1965, fig 22 24

44. A small deep bowl with a blunt carinated profile, a featureless, internally thickened rim and fully oxidized body. The two surfaces are treated with a light red wash. From an early level of Period I B.

45. A miniature dish with an externally grooved and internally beaked rim having a fully oxidized body. The two surfaces are treated with a red wash. From an early level of Period I B.

46. A miniature dish with a featureless rim, a slightly depressed neck and fully oxidized body. It is treated on the outside with a red slip. From an early level of Period I B.

47. A lid with an external string cut knob and splayed, smooth sides having a fully oxidized body. It is treated on both the sides with a red wash. From an early level of Period I B.[1]

48. A lid with a conical central knob with a string cut base. Fully oxidized, it is treated with a red wash. From an early level of Period I B.[2]

49. A similar but smaller conical central knob of a lid with a flat string cut base, an unwashed surface and a fully oxidized body. From an early level of Period I B.

50. A rather deep bowl, perhaps on stand, with a splayed featureless rim and rounded profile. A fully oxidized body has red washed surfaces having horizontal black bands on both the exterior and interior surfaces and double loops enclosed with a black border on the rim. From a late level of Period I B.

51. A fully oxidized flaring base of a bowl-on-stand with featureless edge, red slipped surface painted over with horizontal black bands. From a late level of Period I B.[3]

52. A flaring based squat stand of a large sturdy deep dish or basin with a fully oxidized body. It is treated with a red slip on the outside, over which black bands are painted from which hang multiple central lines above another horizontal border. From a late level of the Period I B.[4]

53. A fragment of a fully oxidized, red slipped dish (probably on stand) with a flat bottom mildly ridged on the outside and incised with circular lines cut by radiating ones on the inside. The ridge on the outside and the periphery on the inside are decorated with painted black bands. From an early level of Period I B.

54. A flaring base fragment of a dish-on-stand with a featureless sharp edge and fully oxidized body. It is treated with a thick black slip on both the surfaces. From an early level of the Period I B.[5]

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[1] Mackay 1937, Pls LVII 1, LXII 8, Marshall 1931, Pls LXXVIII 7, LXXXII 47, Wheeler 1947, fig 20 XXXIX f

[2] Casal 1964 fig 79 365 (IIIB), Rao 1962, fig 23 91; Marshall 1963, Pls LXXVIII 7, LXXXII 40,46

[3] *ibid.*, Pl. LXXIX 1, Casal, 1964, fig 84 394 (IIIC), Mackay 1943, Pl XXV 23

[4] *ibid.*, Pl XXV 20, *ibid* 1937, Pl LX 6, Marshall 1931, Pl LXXIX 10,13, Khan, 1965, fig 22 22,16 (PH)

[5] *ibid.*, fig 20 18 (PH).



Fig. 33. Pottery.

Fig. 33

55. A fully oxidized sturdy sherd of a jar treated on the outside with a deep brown red slip over which are painted a plant motif with pinnate leaves in black. From a late level of the Period I B.

56. A fully oxidized sturdy sherd having a deep red slip over which are painted obliquely hatched pinnate leaves separated by curved crosslines in black. From an early level of Period I B.

57. A fully oxidized fragment of a sturdy jar with concave neck and bulbous body having a shallow groove at the junction of the two. On the outer red slipped surface are painted horizontally placed leaves with vertical hatchings in black. From a late level of the Period I B.[1]

58. A fully oxidized fragment of a bulbous bodied jar treated with a red slip on the exterior, over which are painted intersecting circles filled alternatively with obliquely hatched lenticulates and rayed circles, each with a dot inside. From an early level of the Period I B.[2]

59. A fully oxidized fragment of a sturdy jar, treated with a red slip over which intersecting circles are painted filled in the almost square spaces with hollow circles in black. From a late level of the Period I B.

60. A fully oxidized fragment of a small vessel treated with a red slip over which are painted concave sided squares with mesh patterns and hollow lenticulates in black. From a late level of the Period I B.[3]

61. A sturdy fully oxidized fragment with a red slip, painted over in black with intersecting circles with hollow circles inside the square spaces. From a late level of the Period I B.

62. A fully oxidized fragment with a red slip, over which horizontal bands are painted above and below the conjoint circles laid horizontally in black. From an early level of the Period I B.[4]

63. A fully oxidized sherd of a bulbous vessel treated with a red slip, over which are painted a plant motif with a palm fronde in black. From an early level of the Period I B.

64. A fully oxidized fragment of a bulbous bodied jar treated with a reddish slip over which are painted, within double lined horizontal bands, pendant triangles filled in with a mesh pattern with solid dots on the three corners. From a late level of the Period I B.

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[1] Majumdar. 1934, Pl XV 28 Jhukar.

[2] *ibid*., Pl XXIII 48 Lakhiyo, Marshall· 1931. Pl. LXXXVII. 12; Casal 1964, fig. 92.485.

[3] Majumdar: 1934, Pl. XVI 21 Jhukar.

[4] Stein· 1929; Pls XIII R634; XIV.D 27; *ibid*., 1931, Pl. III J.D b; Fairservis: 1959. fig. 395.114-16 Jangal painted

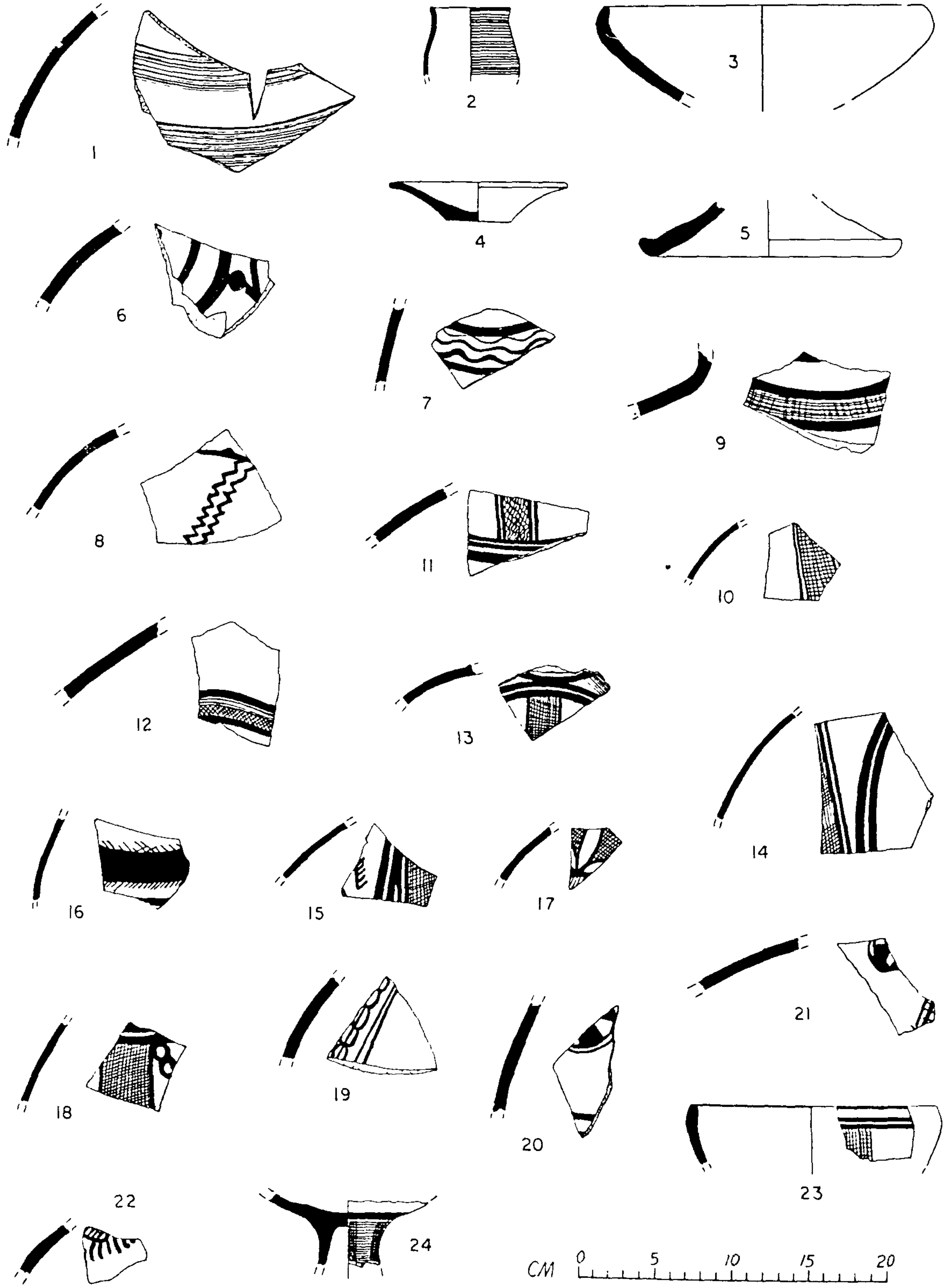


Fig. 34. Pottery.

65. A fully oxidized sherd of a small bulbous jar, treated on the outside with a red wash over which is a broad band in black over the grooved neck and multiple horizontal lines, above which are placed solid circles in black. From a late level of the Period I B.[1]

66. A fully oxidized sherd with a dark brown slip. A double lined black horizontal band to which are suspended solid black dots as decoration. From an early level of the Period I B.[2]

67. A fully oxidized body sherd of a jar with a red wash, over which are triple lined horizontal bands, from which are suspended groups of wavy lines in black. From a late level of the Period I B.[3]

68. A semioxidized upper body fragment of a small bulbous vessel with a red slip on the outer surface, over which are painted horizontal bands enclosed by wavy lines and groups of wavy lines hanging over the body in black. From an early level of the Period I B.[4]

69. A semioxidized sherd with a red wash, over which are painted in black meshfilled lenticulates and standing multiple wavy lines over a double lined horizontal band. From an early level of the Period I B.

70. A semioxidized sherd with a red wash, over which are painted double lined borders in black within multiple wavy and standing lines. From an early level of the Period I B.[5]

71. An oxidized fragment of a sturdy jar, treated on the outside with a red slip, over which are painted double lined vertical borders in black within alternate standing zigzags and straight lines. From an early level of the Period I B.[6]

72. A fully oxidized fragment of a bulbous vessel with a buffish core and pinkish cream slip, over which are painted three slanting lines inside a double lined arch in dark-brown. From a late level of the Period I B.[7]

73. A fully oxidized sherd of a bulbous vessel, treated on the outside with a deep red slip, over which is painted a single lined arch in black below a double lined horizontal band and the triangular column is filled with mat patterns in black. From an early level of the Period I B.[8]

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[1] *I.A.R* 1953-54, Pl IV.A Rupar

[2] *ibid.*, fig 3.9 Kalibangan, Fairservis 1959, fig. 43.59 r Faiz Muhammad Gray

[3] Fairservis, 1961, fig 104.4 Gardan Reg

[4] Rao 1962, fig 20.68 B

[5] Casal 1964, figs 87.425, 90.456 (IIIC), Marshall 1931, Pl LCI.23; Fairservis:1956, fig. 293.253 Quetta Ware; Stein 1937, Pl XXVIII 13

[6] Mackay:1943, Pl XLII 14 Jhukar, Fairservis:1956, fig 291.230 Quetta ware; ibid.1959, fig 20.312 n R6 Black Over Red, 351.56 Jhukar like

[7] *I.A.R* 1962-63, fig 2.P Kalibangan

[8] *ibid.*, 1953-54, Pl IV A Rupar.

74. A semioxidized sherd with a smoky red wash over which is painted a horizontal mesh band in black. From an early level of Period I B.

75. A deep bowl or dish fragment, with a flattened rim, slanting sides and a bluntly carinated profile. It is treated with a deep red slip. It is having a horizontal mesh band over the sides in black. From an early level of the Period I B.

76. A fully oxidized neck and shoulder fragment of a bulbous jar, treated on the outside with a red slip over which are painted groups of wavy lines hanging from a triple lined neck band in black. From an early level of the Period I B.[1]

77. A semioxidized sherd with a brownish wash, over which is painted a deep brown solid horizontal band having loops above and below. From an early level of Period I B.

78. A fully oxidized sherd from a bulbous vessel treated with a red wash, over which are painted lines slanting in opposite directions on either side of a vertical line in deep brown. From an early level of the Period I B.[2]

79. A semioxidized shoulder fragment of a bulbous vessel, painted with a mat patterned band within broad lines and a band of horizontal wavy lines inside a similar border in black. From an early level of Period I B.

(ii) Polytone Cream Slipped Ware.

Fig. 34.

1. A fully oxidized sherd of a bulbous jar with horizontal bands of multiple grooves, treated over with creamy slip. From an early level of the Period I B.

2. A fully oxidized upper part of a miniature vessel with a concave neck, featureless rim and an ovaloid body, treated with a cream slip on the outside, over which are multiple horizontal bands in light brown below a black rim band. From a late level of Period I B.

3. An oxidized deep bowl with tapering sides and a slightly incurved featureless rim with a buffish core and body, over which was perhaps given a light brownish red slip. From an early level of Period I B.

4. A small fully oxidized dish with a string cut flat base and slightly splayed sides with a featureless rim. On both the surfaces a light cream slip is applied. From an early level of Period I B.

5. A fully oxidized base of a stand with outgoing sides ending in a slightly raised edge. Both the surfaces are treated with cream wash. From an early level of the Period I B.

6. A fully oxidized sherd from a bulbous body treated with a thick cream slip over which are painted bands and dots in deep brown. From a late level of the Period I B.

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[1] Fairservis 1961, fig. 113-115 Emir Gray

[2] Marshall 1931, Pl LCI.28.

7. A fully oxidized shoulder fragment of a bulbous bodied vessel treated with a creamy band having triple wavy lines with straight borders in black. From a late level of the Period I B.[1]

8. A semioxidized sherd with a cream wash, painted over in brown with a horizontal band with hanging zigzags. From a late level of Period I B.[2]

9. A partially oxidized shoulder fragment of a bulbous jar treated with a cream slip. Horizontal bands filled in with mat patterns in thin lines are painted in black. From an early level of Period I B.[3]

10. An almost fully oxidized sherd treated with a thick cream slip painted over with a mat patterned column within double-lined borders. From a late level of Period I B.

11. A fully oxidized sherd, treated on the outside with a cream slip over which is painted a column with vertical wavy lines within a double lined border standing over a thick double lined horizontal band. From an early level of the Period I B.[4]

12. A fully oxidized sherd, treated with a brownish cream slip, over which is painted a wavy band filled in with cross hatchings in brown. From an early level of Period I B.

13. A semioxidized sherd with a cream slip over which are painted neck bands in brown below which are double lined arches having vertical columns filled in with a mat pattern. From an early level of Period I B.[5]

14. A fully oxidized sherd, painted over a thick cream slip in black brown with a mat patterned column and double lined hollow arches. From a late level of Period I B.

15. A fully oxidized sherd, treated with a thick cream slip, painted over in black brown with a meshed column within a multiple lined border and a double 'E'-pattern. From a late level of Period I B.

16. A fully oxidized sherd, treated with a cream slip, bearing a broad band in black with fin like strokes above another thin band. From a late level of Period I B.

17. A well fired sherd with a blackened core, treated with a cream slip over which are painted intersecting circles in dark brown outline, filled with light brown cross hatchings. From a late level of Period I B.

18. A fully oxidized sherd treated with a cream slip over which are painted deep black brown horizontal bands, suspended from which are columns with a mat pattern and a chain motif. From an early level of Period I B.

19. A fully oxidized sherd, treated with a deep red slip, over which are painted in

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[1] Fairservis 1956, fig 284 146-7 Quetta ware, *ibid* 1959, figs. 340.145 e, 348.53 c Periano painted; *I A R.* 1956-57, Pl XVII-i, 10 Lothal; Rao 1962, fig. 26 A, 36

[2] Fairservis 1956, fig 284 177 Quetta Ware; *ibid*;1961, fig 104 1, 4.

[3] *ibid.*, fig 388.25 KGM Black Over Red

[4] *ibid.*, fig 273 23, KGM Black Over Red

[5] Stein 1937, Pl XXIII 56

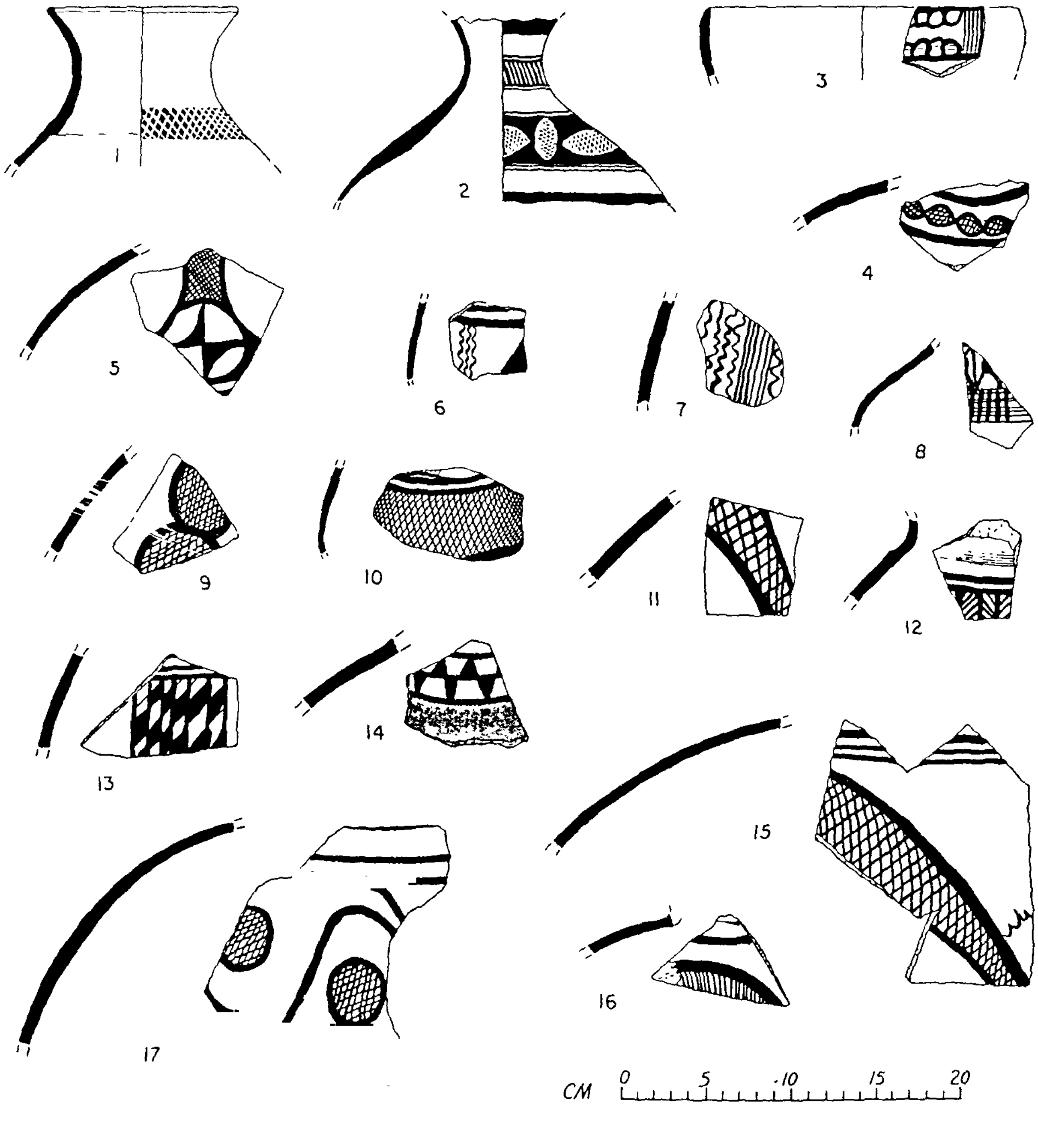


Fig. 35. Pottery.

black a centrally crossed vertically placed chain motif beside a double line border. From a late level of Period I B.[1]

20. A sherd with overburnt core and a thick whitish cream slip, having a double lined circle enclosing alternate solid triangles and a horizontal band in dark brown. From a late level of the Period I B.[2]

21. A similar sherd with a comparable design but on a smaller scale. From an early level of Period I B.

22. A small, coarse over burnt sherd bearing a thick creamy slip, painted over with an oval form with hatched lines and radiating curved strokes in brown. From a late level of Period I B.[3]

23. A fully oxidized fragment of a convex sided bowl with a featureless rim, treated outside with red wash and inside creamy slip over which are painted rim bands, suspended to which is a mat patterned column in light brown. From an early level of Period I B.

24. The upper portion of the cylindrical stem of the bowl-on-stand. Semioxidized, the inside of the bowl is treated with a red wash, while the outer surface of the stem is decorated with a black band over a cream slip. Below are multiple horizontal lines in brown, crossed over by spaced groups of vertical lines. From a late level of Period I B.

(iii) Polychrome Red Slipped Ware.

Fig. 35

1. A concave necked jar with a featureless rim and bulbous semioxidized body, treated with red slip on the outside. A violet band with a mesh pattern over it is painted on the shoulder in white. From a late level of Period I B.

2. A concave necked jar with a bulbous semioxidized body treated on the outside with a red slip over which are painted solid broad bands in black. From a late level of Period I B.[4]

3. A fully oxidized hemispherical bowl with a red wash, over which on the exterior of the rim is a white band. Above it are painted two horizontal bands of a chain motif in deep reddish brown. From an early level of Period I B.[5]

4. A semioxidized sherd with a red wash outside, over which is painted a creamy

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[1] Stein 1929, Pl. XIII. R 634, *ibid.*, 1937 Pl XXV.41.

[2] *ibid.*, Pl XXV 29

[3] Fairserveris: 1959, fig 404, 217 Periano painted

[4] *I A R* 1962-63, fig 3 11 Kalibangan

[5] Stein, 1929, Pls XIV D 27; XX S j ii 7, Fairservis:1959, figs. 295, 114.16 Jangal painted; 409.277, 410 278, Periano painted

band within black borders, filled in with horizontally placed cross-hatched chain motifs in black. From a late level of Period I B.[1]

5. A fully oxidized sherd with a red wash, treated over with a bright whitewash. Over it are painted a concave sided mesh filled square above a circular outline enclosing concave based triangles with meeting apexes in brown. From an early level of Period I B.[2]

6. A fully oxidized sherd with a red wash, over which are painted in black horizontal bands with hanging wavy lines and a solid triangle below. From a late level of Period I B.[3]

7. An almost fully oxidized sherd treated with a white wash over which are painted groups of vertically deployed wavy and straight lines in brown. From a late level of Period I B.[4]

8. An overburnt sherd, treated over with a cream band over which are painted mat band supporting linear squares with diagonals having a solid dot in the centre in brown black. From a late level of Period I B.

9. A fully oxidized sherd treated on the outside with a deep black brown slip over which is painted in violet a big chain motif with a mesh pattern in the same pigment over a white background within. From an early level of Period I B.

10. A fully oxidized sherd with a white wash over which a horizontal mesh band is painted within a double lined border in black brown. From a late level of Period I B.[5]

11. A fully oxidized sherd with a red slip over which is painted a slanting but top heavy band of a mesh pattern over a white background within two broad lines in deep brown. From an early level of Period I B.

12. A semioxidized ill fired shoulder fragment of a bulbous jar with a red wash, over which are painted, in reddish brown, double horizontal bands above vertical lines and lines slanting in opposite directions in light brown over a white background. From an early level of Period I B.

13. A fully oxidized sherd treated with a thin whitewash, over which are painted vertically deployed solid alternating parallelograms below a double lined band. From an early level of Period I B.

14. A semioxidized sherd with a red wash, over which are painted, in dark brown, opposed and displaced triangles within horizontal bands above a whitewashed background. From an early level of Period I B.[6]

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[1] Fairservis:1959, fig 391 56 Jangal painted; Marshall. 1931, Pl LXXXIX 11, Mackay:1943, Pl. XLVII 32 Jhukar

[2] Casal: 1964, fig 95 517 (IID)

[3] Fairservis 1959, fig 409 267 Periano painted

[4] De Cardi.1965, fig. 16 24 Siah II ni, Stein.1929, Pl. XX S J iii, 3,4

[5] Stein:1937, Pl. XXI 9

[6] Casal:1964 figs 49.49 (IA), 66.232 (ID), 67 250 (IIA); Fairservis.1961, fig 115 133 KGM; Stein:1929, Pl XIV D 5.; *ibid* 1937, Pl. XXX 1; XXII 60

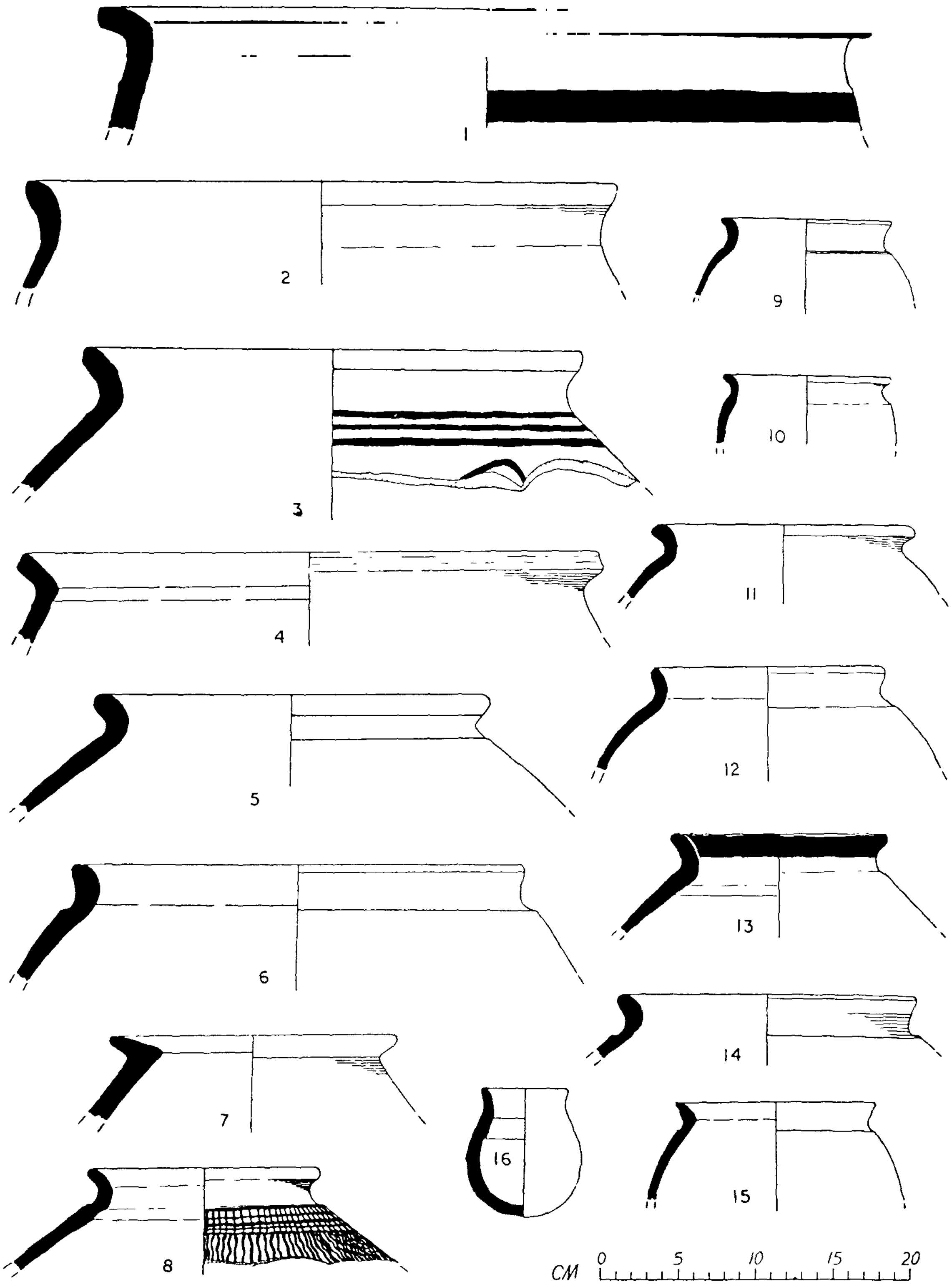


Fig. 36. Pottery.

15. A fully oxidized body piece of a bulbous jar, treated on the outside with a red slip, over which is painted a slanting mesh band in black above three horizontal bands on a white background. From an early level of Period I B.

16 A well fired shoulder sherd with a buffish core and greenish-buff slip over which is painted below a horizontal band in black-brown a broad outlined arch with slanting lines within. From a late level of Period I B.

17. A partially oxidized fragment of a bulbous jar with a buffish core and greenish buff slip, over which are painted a solid broad band in red above which on either side of a double lined hook are circles with mesh fillings below and a double lined horizontal band above. From an early level of Period I B.[1]

(iv) Coarse Red Ware

Fig. 36

1. A low necked sturdy storage jar with a short splayed out rim and an incipient rib on the shoulder; the fully oxidized-body is treated with red slip. On the shoulder, rim edge and inside the neck are painted broad bands in black. From an early level of Period I B.[2]

2. A concave necked sturdy storage jar with a clubbed rim and a fully bulbous body, treated with a tannish slip. From a late level of Period I B.

3. A low necked storage jar with an outturned featureless rim, bulbous semioxidized body treated with red slip over which are painted horizontal bands in black on the rim and shoulders, and shallow arches below. From an early level of Period I B.[3]

4. A semioxidized sturdy storage jar with a carinated outturned, externally bevelled rim and a bulbous body. From a late level of Period I B.[4]

5. A low necked sturdy storage jar with a short outturned neck and bulbous body with a shallow groove on the shoulder. Semioxidized core. From a late level of Period I B.[5]

6. A fully oxidized, sturdy storage jar with a short outturned rim and a bulbous body with an incipient ridge on the shoulder. Treated on the outside with a red slip. From a late level of Period I B.

7 A semioxidized sturdy storage jar with a carinated neck and short outturned rim. Traces of soot marks on the outer surface. From a late level of Period I B.[6]

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[1] Stein 1937, Pls XXIII 7, XXIV 50, 53, XXVI 61

[2] *I A R* 1957-58, fig 6 Bhagatrav, Rao 1962, fig 19 31

[3] *ibid*., fig 24 104

[4] *ibid*., figs 20 37, 34 107 a

[5] *ibid*., fig 18 5

[6] *ibid*., fig 30 57.

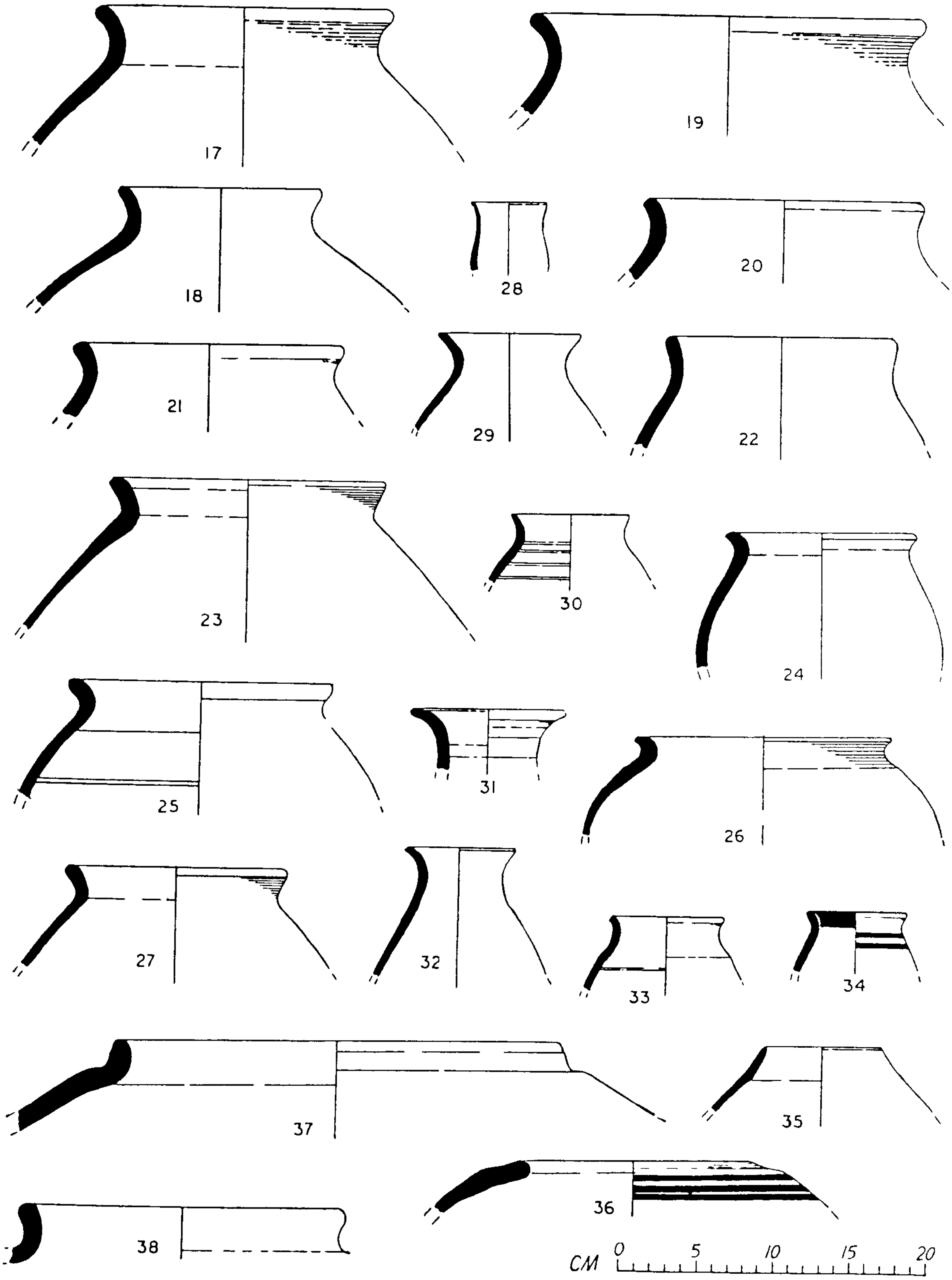


Fig. 37. Pottery.

8. A fully oxidized, sturdy storage jar with a low concave neck, featureless rim and a bulbous body with an incipient ridge on the shoulder, below which are painted over a red slip, a mat motif in black in the form of a band from which multiple wavy lines are suspended. From a late level of Period I B.

9. A low, concave necked jar with a featureless rim and bulging shoulder and a fully oxidized bulbous body, bearing traces of red wash. From an early level of Period I B.

10. A similar but smaller vessel from a late level of Period I B.

11. A semioxidized bulbous jar with a low neck and short outturned rim treated with red wash. From an early level of Period I B.

12. A short, vertical necked bulbous jar with a semioxidized body and a coarsened outer surface. From a late level of Period I B.

13. A low necked, fully oxidized jar with a bulbous body and a short outturned neck. It is treated on both the surfaces with a red wash. From a late level of Period I B.

14. A semioxidized bulbous jar with a short out turned rim, a red slipped coarsened upper surface and an incipient ridge over the shoulder. From a late level of Period I B.

15. A fully oxidized, small bulbous jar with surface coarsened on the outside and an incipient ridge over the shoulder. From an early level of Period I B.

16. A miniature gourd shaped vessel with a short vertical rim and an uneven body, treated on the exterior with a red slip. From an early level of Period I B.

Fig. 37

17. A low necked storage jar with a slightly outturned featureless rim and a semioxidized bulbous body with a coarsened outer surface, treated with a red wash. From a late level of Period I B.

18. An almost exactly similar but fully oxidized jar with smooth surface. From a late level of Period I B.

19. Another variant with an fully oxidized body. From a late level of Period I B.

20. Yet another variant with a semioxidized body. From a late level of Period I B

21. Yet another variant with a fully oxidized body. From a late level of Period I B.

22. A low almost vertical necked jar with a bulbous, fully oxidized body treated with red wash on both the surfaces. From a late level of Period I B.

23. A fully oxidized bulbous jar with a concave neck and short out turned rim, coarsened exterior and red wash. From a late level of Period I B.

24. A low necked jar with a short, slightly everted rim and a bulbous, fully oxidized body and treated with red wash. From an early level of Period I B.

25. A fully oxidized bulbous jar with a short outturned rim. It is treated with red wash on both the surfaces. From a late level of Period I B.

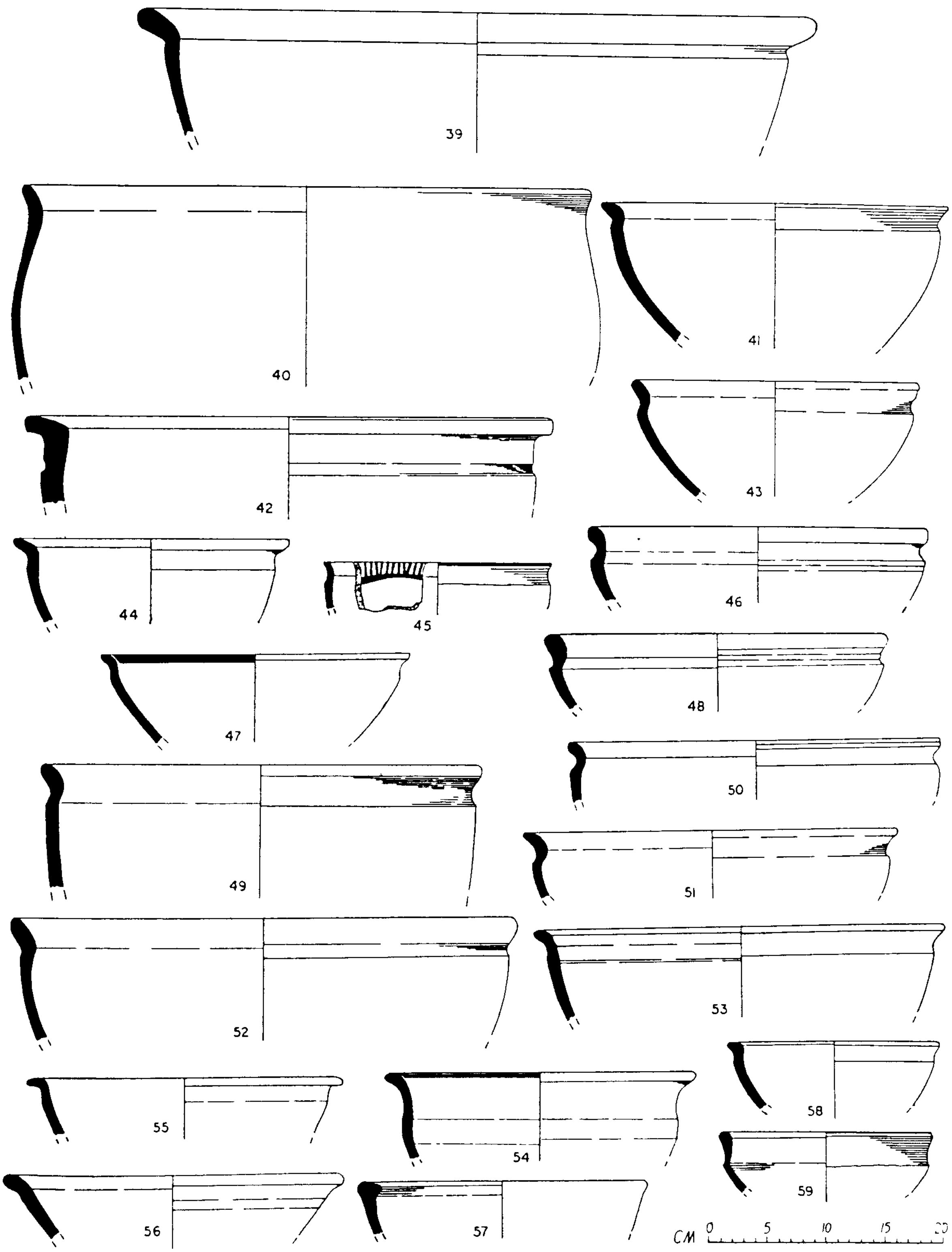


Fig. 38 Pottery.

26. A low necked bulbous jar with a short everted rim. It is treated with a red wash over the inner and outer coarsened surfaces. Fully oxidized body. From a late level of Period I B.

27. A fully oxidized bulbous jar with a short outturned rim over a low neck. From an early level of Period I B.

28. A miniature vessel with a mildly concave neck and a bulbous, fully oxidized body and a featureless rim. It is treated on the outside with red wash. From an early level of Period I B.

29. A bulbous fully oxidized jar with a concave neck, featureless rim and red slipped blotchy surface. From a late level of Period I B.

30. A semioxidized jar with a short featureless rim, a low concave neck and a bulbous body with a red slipped surface. From a late level of Period I B.

31. A fully oxidized jar with a concave neck, splayed featureless rim and a bulbous body. It is treated on the outside with red wash. From an early level of Period I B.

32. A semioxidized jar with a low concave neck and an ovaloid body treated on the outside with a bright red slip. From an early level of Period I B.

33. A low concave necked vessel with a rounded rim and a bulbous body with a shallow rib on the shoulder. The fully oxidized body is treated with red wash. From an early level of Period I B.

34. A low concave necked miniature jar with a bulbous, fully oxidized body. It is treated with a red slip, over which horizontal black bands are painted on the shoulder externally, and on the rim internally. From a late level of Period I B.

35. A semioxidized neckless jar with sloping sides and a gourd shaped body treated externally with a black-brown slip. From an early level of Period I B.

36. A semioxidized neckless gourd shaped jar with an incipient ridge over the shoulder. Over the red slipped outer surface are painted three horizontal bands in black-brown. From an early level of Period I B.[1]

37. A fully oxidized, sturdy, bulbous storage jar with a vertical rim and an incipient ridge over the shoulder. Red wash is given over the two surfaces. From a late level of Period I B.

38. A fully oxidized, bulbous jar with an almost vertical rim. The outside surface is treated with red slip. From a late level of Period I B.

Fig. 38

39. A deep hemispherical basin with an outturned clubbed rim and a fully oxidized body. It is treated on the two surfaces with a red slip. From a late level of Period I B.

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[1] Casal 1964 fig 70 282 (II B)

40. A deep hemispherical basin with an internally thickened concave neck and a featureless rim. Fully oxidized body is treated over with a red slip. From a late level of Period I B.

41. A fully oxidized basin with a deep hemispherical body and a short internally thickened and outturned rim. It is treated on the outside with red slip. From an early level of Period I B.

42. A deep hemispherical basin with a short projected, square-cut rim and a shallow groove running around the shoulder and fully oxidized body. It is treated with a red slip on the outside. From a late level of Period I B.

43. A deep hemispherical basin with a short outturned rim, a bluntly carinated shoulder and fully oxidized body. It is treated on the outside with red slip. From an early level of Period I B.

44. A deep hemispherical basin with a short outturned rim and a semioxidized body bearing a red slip inside and outside. From a late level of Period I B.

45. A deep hemispherical basin with a bluntly carinated shoulder, a short outturned rim and a fully oxidized body bearing red slip over both the surfaces. On the rim, within two horizontal bands, are painted groups of short vertical strokes. From a late level of Period I B.

46. A deep hemispherical basin with a slight carination on the shoulder and a short outcurved and externally beaded rim. It is fully oxidized and the body is treated on both the surfaces with red wash. From a late level of Period I B.

47. A deep basin with tapering sides, bluntly carinated shoulder and a short out curved rim; the fully oxidized body is treated with a brown slip on the inside, bearing a black band on the rim and a red wash on the outside. From a late level of Period IB.

48. A deep hemispherical bowl with a carinated shoulder and a out curved, clubbed rim; the fully oxidized body is treated on both the surfaces with red wash. From a late level of Period I B.[1]

49. A deep basin with almost vertical sides, a short outcurved and clubbed rim with a semioxidized body. It is treated with red wash turned smoky inside. From an early level of Period I B.

50. A deep hemispherical basin with a bluntly carinated shoulder, an externally thickened and outturned rim and a fully oxidized body. It is treated on both the surfaces with a red slip. From a late level of Period I B.

51. A deep hemispherical basin with a carinated shoulder, short internally thickened and outturned rim and a semioxidized body. It is treated with a red slip. From a late level of Period I B.[2]

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[1] *I A R* 1957-58, fig 6 Bhagatrav

[2] *Ibid*

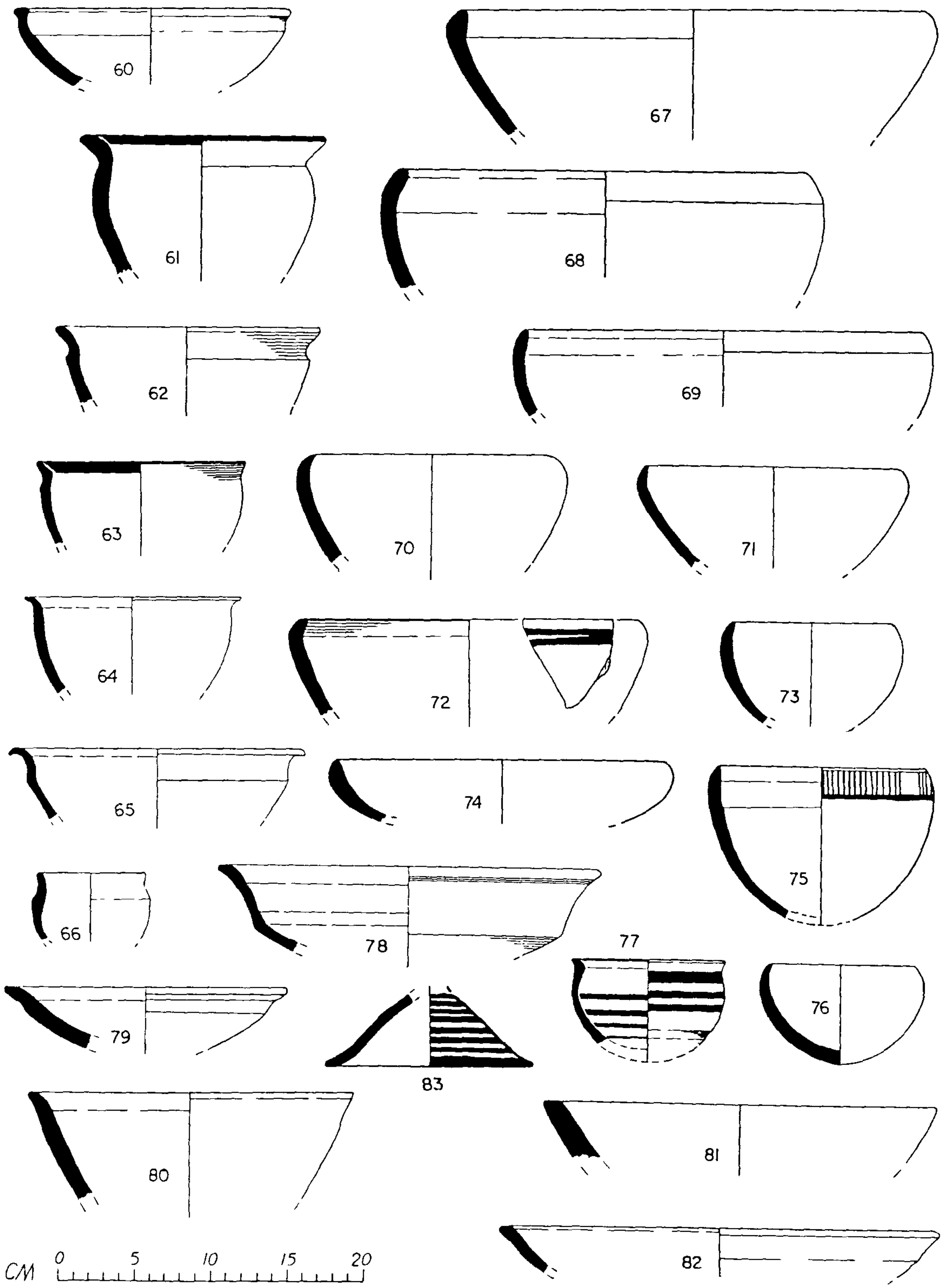


Fig. 39. Pottery.

52. A deep hemispherical basin with a bluntly carinated shoulder, a short outturned and internally thickened rim and fully oxidized body. It is treated with a red slip on both the surfaces. From a late level of Period I B.

53. A deep hemispherical basin with a bluntly carinated shoulder, an outturned featureless rim and semioxidized body with a red slip on both the surfaces. From a late level of Period I B.

54. A deep basin with an hemispherical body, a concave neck and a featureless rim. It has a fully oxidized body and is treated on both the surfaces with red slip. From a late level of Period I B.

55. A deep basin with a short splayed out rim of overburnt brown colour. From an early level of Period I B.

56. A deep basin with a tapering oxidized body and a short splayed out rim. From late level of Period I B.

57. A deep hemispherical bowl with an internally beaked rim and fully oxidized body. It is treated on both the surfaces with a red slip. From a late level of Period I B.

58. A small deep basin with a hemispherical body and an internally beaked rim. Its fully oxidized body is treated with a red slip on both the surfaces. From a late level of Period I B.[1]

59. A carinated bowl with a concave neck and an internally clubbed rim. Its semioxidized body is treated with a red slip on both the surfaces. From an early level of Period I B.

Fig. 39

60. A shallow basin with a curved bottom and an externally beaked rim. Fully oxidized, both the surfaces are treated with a red slip. From a late level of Period I B.

61. A deep hemispherical basin with an outturned rim. Its fully oxidized body is treated with a red slip externally and a dark brown slip internally. On the inner and outer edges of the rim is painted a black band. From an early level of Period I B.

62. A deep basin with tapering sides, outcurved rim and a carinated shoulder; the fully oxidized body is treated on both the surfaces with red slip. From a late level of Period I B.

63. A deep hemispherical basin with a bluntly carinated shoulder, a sharp internally grooved and thickened featureless rim, fully oxidized body; it is treated on both the surfaces with thin red slip. From an early level of Period I B.

64. A deep hemispherical basin with a sharp everted rim and a fully oxidized body which is treated on both the surfaces with red slip. From a late level of Period I B.

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[1] Rao · 1962, figs. 24.109, 43.63-64.

65. A deep hemispherical basin with an incipient carination on the shoulder and a short outcurved rim and fully oxidized-body; it is treated with a red slip inside and outside where soot-marks are; perhaps the idea was to turn it to a smoky hue. From a late level of Period I B.

66. A miniature fully oxidized vessel with a short outturned rim and an incipient carination on the shoulder. From an early level of Period I B.

67. A deep basin with tapering sides and a short incurved rim and a fully oxidized body which is treated with a red slip on both the surfaces. From a late level of Period I B.

68. A deep basin with a convex profile, fully oxidized body and red washed surfaces. From a late level of Period I B.

69. A similar but smaller variant of the above. From a late level of Period I B.

70. A similar but smaller variant of the above. From a late level of Period I B.

71. A fully oxidized variant of the above, treated inside and outside with red slip. From an early level of Period I B.

72. A deep basin with tapering sides, an incurved rim and fully oxidized body. It is treated with red slip on both the surfaces and painted over in black with double bands on the shoulder.From a late level of Period I B.

73. A small, deep bowl with a convex profile, almost sharp rim and fully oxidized body. It is treated with red slip on both the surfaces. From a late level of Period I B.

74. A shallow dish with an externally thickened sharp edged rim having a fully oxidized body. It is treated with a red wash on both the surfaces. From an early level of Period I B.

75. A deep bowl with a convex profile and featureless rim and fully oxidized hemispherical body; both the surfaces are treated with a red wash over which are painted multiple vertical strokes on the rim above a horizontal band. From a late level of Period I B.

76. A deep bowl with convex profile, featureless incurved rim, and a fully oxidized body which is treated with red slip on both the surfaces. From a late level of Period I B.

77. A small hemispherical bowl with a short concave and an internally thickened featureless rim with a fully oxidized body. It is treated with red wash on both the surfaces over which are painted multiple bands in black. From a late level of Period I B.[1]

78. A shallow carinated dish with a rounded bottom, splayed sides and a flat rim. Its semioxidized body is treated on the inside with red slip. From a late level of Period I B.[2]

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[1] Rao:1962, figs. 21.56.

[2] Khan:1965, fig 22.10 (PH).

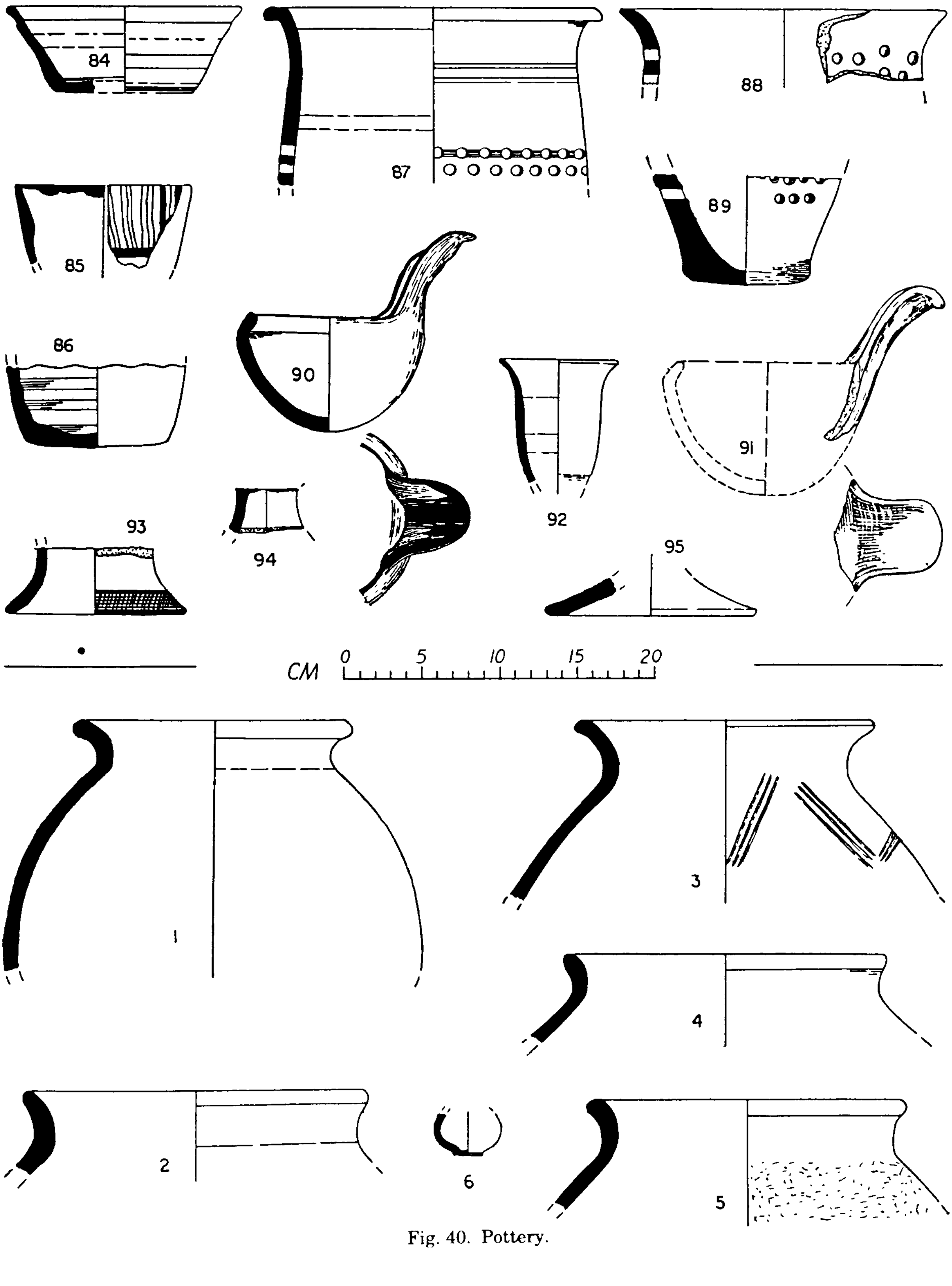


Fig. 40. Pottery.

79. A shallow dish with a rounded bottom and splayed but featureless rim; the fully oxidized body is treated on both the surfaces with red slip. From a late level of Period I B.[1]

80. A deep basin with tapering sides, a featureless rim and an oxidized body displaying smoky outer surface over red wash. From a late level of Period I B.

81. A shallow basin with a rounded bottom and a flat-topped externally sharp edged rim. Semioxidized body is treated with red wash, burnt and smoky inside. From a late level of Period I B.

82. A shallow dish with a rounded bottom, an internally thickened featureless rim and a fully oxidized body which is treated with red wash on both the surfaces. From an early level of Period I B.

83. A base of a fully oxidized stem of a bowl-on-stand with a convex body with splayed out edges. Both the surfaces are treated with red wash, over which on the outside multiple horizontal bands are painted in black. From an early level of Period I B.

Fig. 40 (upper half)

84. A small trough with a featureless rim, flat base, out turned sides and fully oxidized body; both its surfaces are treated with red wash. From an early level of Period I B.[2]

85. A small trough like bowl with outturned internally thickened sides and a featureless rim; the semioxidized body is treated on both the surfaces with a yellowish-red wash over which on the interior of the rim is a smudgy band and on the outside multiple vertical lines standing on a horizontal band in black. From an earlier level of Period I B.[3]

86. A string cut flat bottom with convex outgoing sides and fully oxidized body which is treated with red wash. From a late level of Period I B.

87. A jar having almost vertical sides and a short beaked rim with regular perforations below. Both the surfaces of its fully oxidized body are treated with a reddish-cream wash. From a late level of Period I B.[4]

88. A semioxidized fragment of a concave necked jar with a featureless rim bearing a red slip on the outside. Below the shoulder are regular perforations. From a late level of Period I B.

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[1] *I.A.R.* 1957-58, fig. 8.8 Mehgam.

[2] *ibid.*, 1958-59, fig. 9A Rojdi.

[3] Fairservis: 1956, fig. 267.65 e Jangal painted; Stein:1929, Pl XX. S.J.V.I.

[4] Marshall: 1931, Pl. LXXVIII.20.

89. A small flat based perforated jar with sides tapering on the outside of a fully oxidized body which is treated on the outside with a red wash. From an early level of Period I B.

90. A channel handled hemispherical bowl with an incurved rim; fully oxidized body is treated on both the surfaces with red slip. It bears a black band on the rim and a broad triangle in the centre of the channelled handle. From a late level of Period I B.

91. A channel handle of a hemispherical bowl with a fully oxidized body, which is treated on both the sides with red slip. From an early level of Period I B.

92. A tall, bell shaped goblet with a flaring featureless rim and fully oxidized body. It is treated with a red slip on both the surfaces. From an early level of Period I B.

93. A flaring edged base of stem of a bowl-on-stand with a fully oxidized body; it is treated on both the surfaces with a reddish brown slip painted over on the edge with a mat- patterned band. From an early level of Period I B.

94. A fully oxidized fragment of the upper part of a flaring-based stem of a bowl-on-stand. Treated on the outside with red slip. From a late level of Period I B.

95. A fragment of a flaring base of a dish-on-stand with a fully oxidized body. It is treated with a red slip on both the surfaces. From a late level of Period I B.

(v) Very Coarse Red Ware.

Fig. 40 (lower half)

1. A low-necked jar having a bulbous body and a short splayed out rim. It has a fully oxidized body with a roughened outer surface below the shoulder. From a late level of Period I B.

2. A low concave necked jar having a featureless rim and fully oxidized bulbous body; on the outside it is treated with red slip. From a late level of Period I B.

3. A low concave necked jar having a featureless rim and bulbous body. The semioxidized body is decorated with triple bands of incised lines slanting in opposite directions. From a late level of Period I B.

4. A low concave necked jar having a featureless rim and fully oxidized bulbous body. It is treated with a red wash over the outer coarsened surface. From a late level of Period I B.

5. A similar jar with a semioxidized body having a red wash and burnt blotches. From a late level of Period I B.

6. A miniature, flat based bulbous jar having an oxidized body with encrusted surfaces. From a late level of Period I B.

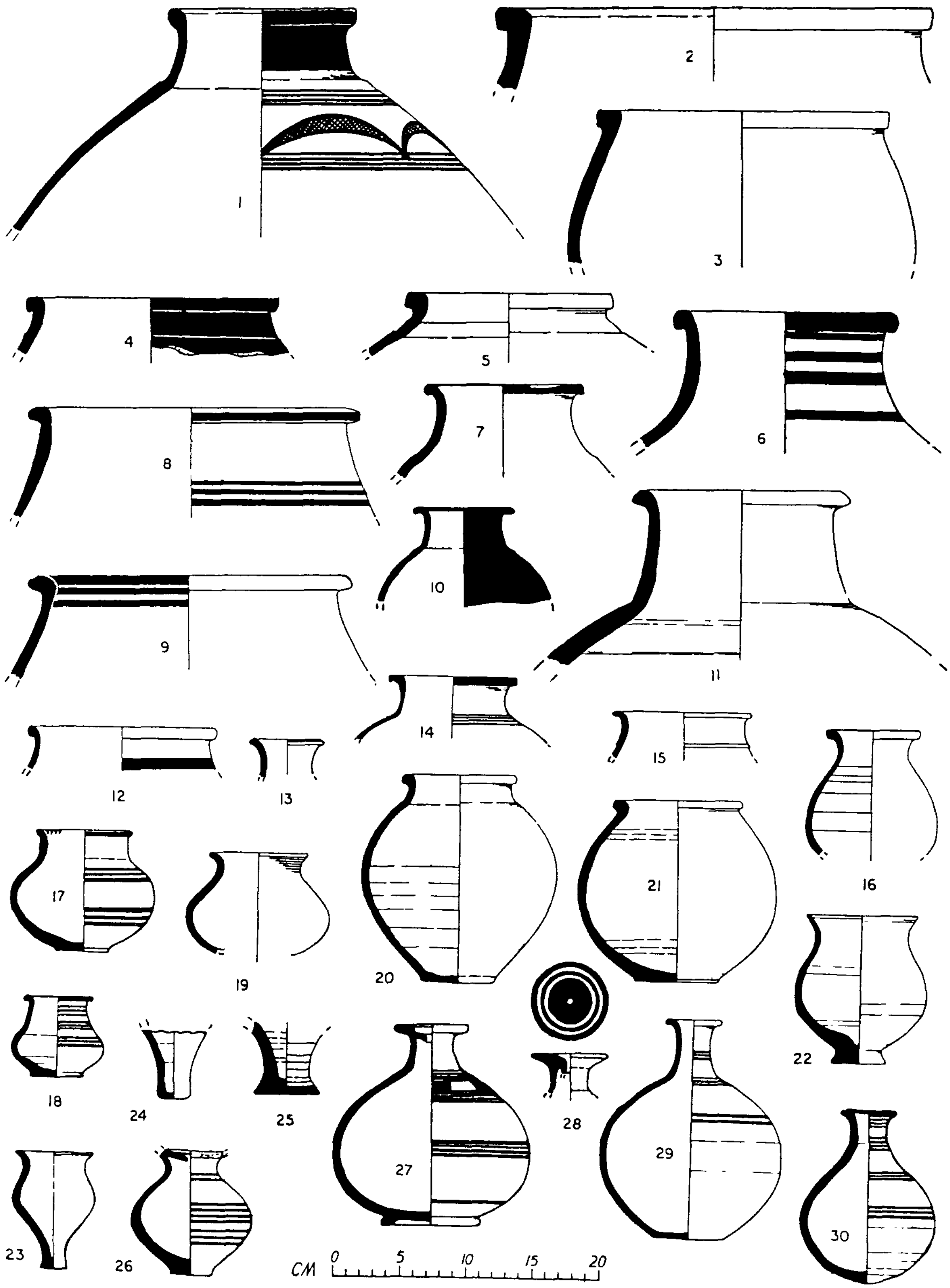


Fig. 41 Pottery

3. PERIOD I C

(i) Harappan Ware.

Fig. 41

1. A low necked storage jar having a collared rim, bulbous and fully oxidized body. It is treated with red slip on the outside over which are painted broad and narrow horizontal bands in black having low mesh filled arches in between. From a late level of Period I C.[1]

2. A neckless storage jar having a collared rim with bulbous and fully oxidized body. It is treated on the outside with red wash. From a late level of the Period I C.

3. A neckless storage jar having a collared rim, wide mouth, bulbous and fully oxidized body. It is treated on the outside with a red slip. From a late level of Period I C.[2]

4. A low-necked storage jar having a collared rim and a bulbous profile with an incipient ridge on the shoulder. Its fully oxidized body is treated on the outside with a black wash. From an early level of Period I C.

5. A variant of the above, treated, however, with red slip. From an early level of Period I C.[3]

6. A medium high necked, wide mouthed storage jar having a collared rim and a bulbous semioxidized body. It is treated with a red wash outside over which are painted multiple horizontal bands in black. From an early level of Period I C.[4]

7. A low concave necked storage jar having a short projected rim and fully oxidized bulbous body. It is treated with a red wash, over which the rim is decorated with a black band. From a late level of Period I C.

8. An almost neckless, wide-mouthed storage jar having a short projected rim, and a bulbous fully-oxidized body. It is treated on the outside with red wash over which are painted multiple horizontal bands on the shoulder in black. From a late level of Period I C.

9. A similar jar having a short, beaked rim and a bulbous fully oxidized body. It is treated on the inside with a deep red slip bearing horizontal bands in black on the rim. From a late level of Period I C.

10. A low necked small jar having a short projected rim and bulbous oxidized body. It is with a buffish core. It has on the outside a black slip covering a part of the inner rim as well. From a late level of Period I C.

11. A high vertical necked storage jar having a short beaked rim and fully oxidized bulbous body. It is treated with a red wash. From an early level of the Period I C.

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[1] *I.A.R.* 1958-59, fig. 9a.1 Rojdi; Rao:1962, fig. 27.1.

[2] *ibid.*, 1958-59, fig. 30.43.

[3] *ibid.*, fig. 9A.3 Rojdi.

[4] *ibid.*, 1957-58, fig. 8.1,2 Mehgam.

12. A low necked small jar having a collared rim and a fully oxidized bulbous body. It is treated with red slip on the outside, over which is a broad black band on the shoulder. From a late level of the Period I C.[1]

13. A concave-necked small jar having a short projected rim and a bulbous semioxidized body. It is treated with a dusty red wash. From an early level of the Period I C.[2]

14. A low necked, small jar having a collared rim and a bulbous well oxidized body with a red slip, over which are painted horizontal bands in black on the rim and shoulders. From a late level of Period I C.

15. A low necked, small jar having a short, projected rim and bulbous, fully oxidized body with an incipient ridge on the shoulder. It is treated with a bright red slip on the outside. From an early level of Period I C.

16. A concave necked jar having a bulbous oxidized body. It is treated with a red slip on the outside. From a late level of Period I C.[3]

17. A low necked, small jar having a beaded rim, a string-cut flat base and a bulbous, fully oxidized body. It is treated with a red slip on the outside, over which are painted multiple horizontal bands in black. On the rim, too, there are, in addition, groups of short vertical strokes. From an early level of Period I C.[4]

18. A low necked, small jar having a short projected rim, string-cut flat base and fully oxidized bulbous body. It is treated with a red slip over which are painted multiple horizontal bands in black. From a late level of Period I C.

19. A low concave necked small jar, a featureless rim and a bulbous, fully oxidized body. It is treated on the outside with red slip. From a late level of Period I C.[5]

20. A low concave necked jar having a short collared rim and an fully oxidized bulbous body tapering to a small, flat base. It is treated with red slip on the outside. From an early level of Period I C.[6]

21. A neckless storage jar having a beaked rim, and a bulbous profile on a small flat base and well fired buffish body, which is treated with a reddish brown slip on the outside. From an early level of Period I C.[7]

22. A concave necked goblet having a featureless rim, fully oxidized bulbous body and a disc base. It is treated with a red slip on the outside. From an early level of the Period I C.

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[1] Rao: 1962, fig. 27.3.
[2] *ibid*: fig. 18.17a; 30.54.
[3] *I.A.R.* 1958-59, fig. 10.14 Rojdi.
[4] *ibid.*, fig. 10.7 Rojdi; 24.8 Alamgirpur.
[5] *ibid.*, fig. 9A.6 Rojdi.
[6] *ibid.*, 1958-59, fig. 9b.1, 4 Rojdi; Rao: 1962 fig. 18.15.
[7] *I.A.R.* 1958-59, fig. 24.16 Alamgirpur.

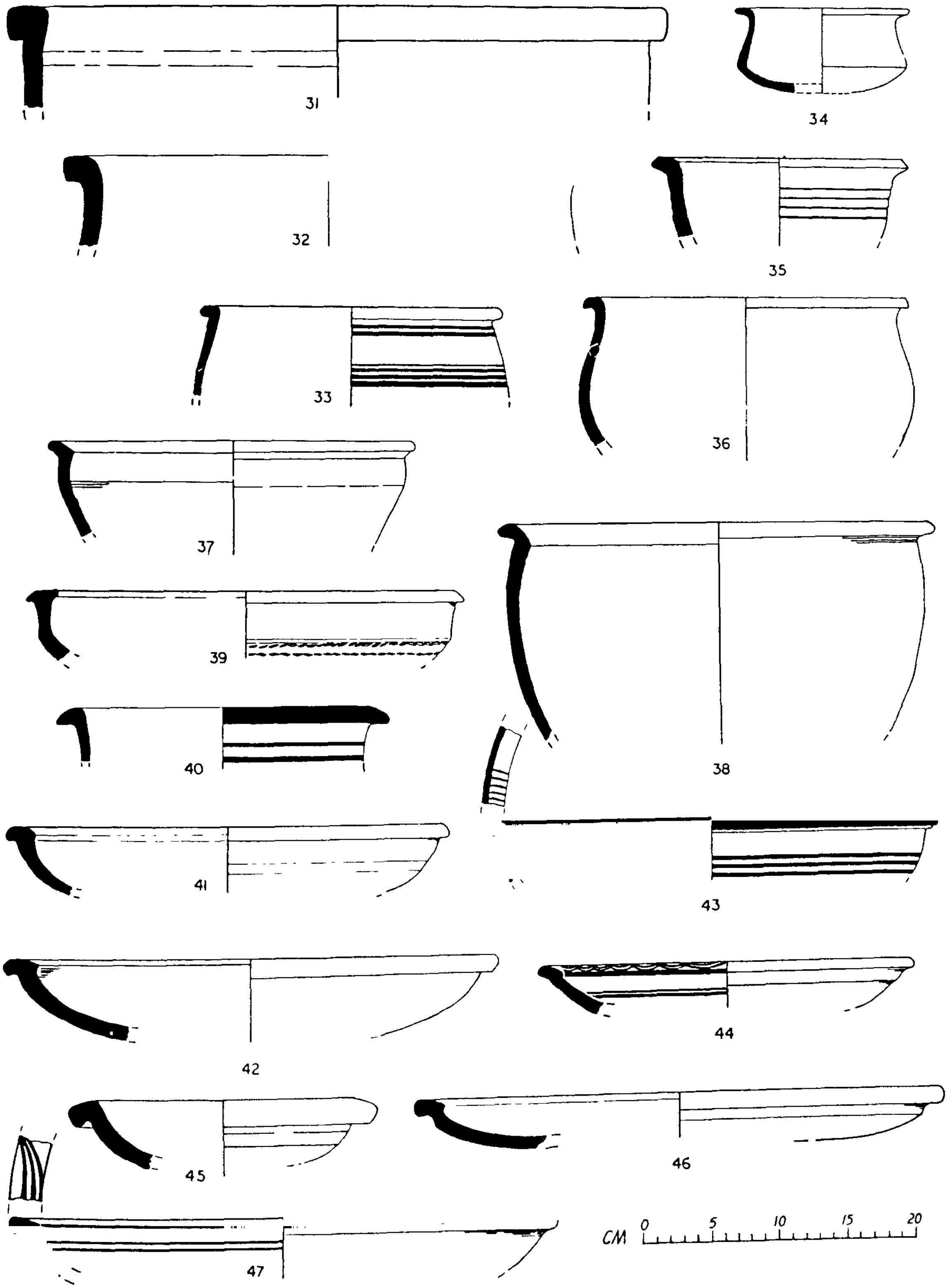


Fig. 42. Pottery.

23. A concave necked goblet having a featureless rim, fully oxidized bulbous body on a solid footed base. The outer surface is treated with red slip. From an early level of Period I C.[1]

24. A hollow footed base of a similar goblet having a fully oxidized body. It is treated on the outside with a deep red brown slip. From a late level of the Period I C.

25. A hollow footed flat base of a large 'Indus Goblet' with a fully oxidized-body, treated on the outside with a red wash, over which is painted a black band on the edge of the base. From an early level of the Period I C.[2]

26. A small concave necked jar having an attached hole-mouthed lid, bulbous body and a small disc base. Fully oxidized, the outer surface is treated with a red slip over which are groups of horizontal bands painted in black. From an early level of Period I C.[3]

27. A bulbous bodied jar with a ring base, a bottle neck with a short, projected rim and an attached hole-mouthed lid. The fully oxidized body is given a red slip, over which are painted groups of multiple horizontal bands in black; the upper two bands enclose spaced mat patterned squares. From an early level of Period I C.

28. A fragment of a hole mouthed lid attached to the bottle neck of a similar jar, painted on the top with a solid, black circle encircled by a couple of concentric bands. From an early level of Period I C.

29. A high necked jar with a short projected rim and a bulbous fully oxidized body with a flat base. It is treated with a red slip on the outside, over which are horizontal bands painted in black above the belly. From a late level of the Period I C.[4]

30. A high bottlenecked jar with a short projected rim and a fully oxidized bulbous body with a round base. It is treated on the outside with a red slip over which there are groups of multiple bands painted above the belly. From a late level of the Period I C.[5]

Fig. 42

31. A sturdy basin with a collared rim and a slightly convex profile. Its fully oxidized body is treated with a red wash on the outside. From a late level of Period I C.[6]

32. A sturdy basin with a collared rim and a bulbous profile with a fully oxidized-

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[1] *I.A.R.*, 1958-59, fig. 23.85.

[2] *ibid.*, fig 23.83 b; *ibid.*, fig. 10.6 Rojdi

[3] Mackay: 1943, Pls. XXVII 70 72-3, 78; XXXIX.26; Marshall: 1931, Pl. LXXXI.16, 17; Rao: 1962, fig. 37.8.

[4] Vats: 1940, Pl. LXX.21 ; Stein: 1931, Pls. V. ji iii; LXXC.ii.

[5] Marshall: 1931, Pl. LXXXI. 13; LXXXVI. B, ii.

[6] Casal· 1964, fig. 93 493 (IIID); *I.A.R.*, 1958-59, fig. 9A.14, 9B.5, Rojdi; Rao. :1962, figs. 20.34 a, 30.43

body, treated with a red wash, over which is painted a black band on the rim. From a late level of the Period I C.[1]

33. A deep basin having a short projected rim with rounded edge and fully oxidized bulbous body. It is treated with a red wash and painted over with black bands on the rim and shoulder. From a late level of Period I C.[2]

34. A small carinated *handi* with a short projected rim. Its oxidized body is treated with red slip. From an early level of Period I C.[3]

35. A small, deep basin having a rounded bottom, short beaked rim and shoulders decorated with shallow grooves. Its fully oxidized body is treated with a red slip on both the surfaces. From a late level of Period I C.

36. A deep basin having a short projected rim and a fully oxidized bulbous body. It is treated with a dusty wash. From an early level of Period I C.[4]

37. A deep basin having a short projected rim and a bluntly carinated profile with a rounded bottom. Its fully oxidized-body is treated on both the surfaces with red slip. From a late level of the Period I C.[5]

38. A deep basin having an internally bevelled and externally beaked rim, a slightly convex profile, rounded bottom and fully oxidized body. It is treated on both the surfaces with a deep red slip. From an early level of the Period I C.[6]

39. A shallow basin having a nail headed rim and a carinated profile. On the fully oxidized body the surfaces are treated with red wash; at and below the carinations there are two horizontal cord impressions. From an early level of Period I C.[7]

40. A deep basin with a short projected rim and almost vertical sides, perhaps, terminating in a rounded bottom. Its fully oxidized body is treated with red wash. On the rim and shoulder are painted horizontal bands in black. From a late level of Period I C.[8]

41. A shallow basin having a rounded profile, a beaked rim and fully oxidized body. It is treated on the surfaces with a red wash. From an early level of Period I C.[9]

42. A shallow basin having a rounded profile,an internally beaked and externally projected rim and fully oxidized body. It is treated with red wash on both the surfaces. From a late level of Period I C.[10]

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[1] Rao: 1962, fig. 20.32.

[2] *ibid.*, fig. 20.40a; *I.A.R.* 1958-59, fig. 9B.6 Rojdi.

[3] Mackay:1943, Pl. XL.26 Jhukar; Rao: 1962, fig. 22.62.

[4] *ibid.*, fig. 34.37.

[5] *ibid.*, fig. 20.40 b.

[6] *ibid.*, fig. 28.26; *I.A.R.*1958-59, fig. 24.6 Alamgirpur; Mackay: 1937, Pl. LXV. 43.

[7] Casal: 1964, figs. 69.273 (IIB); 73.314 (IIIA).

[8] Rao: 1962 fig. 30.46.

[9] *ibid.*, fig. 22.68b. 23.70.

[10] *ibid.*, fig. 22.59.

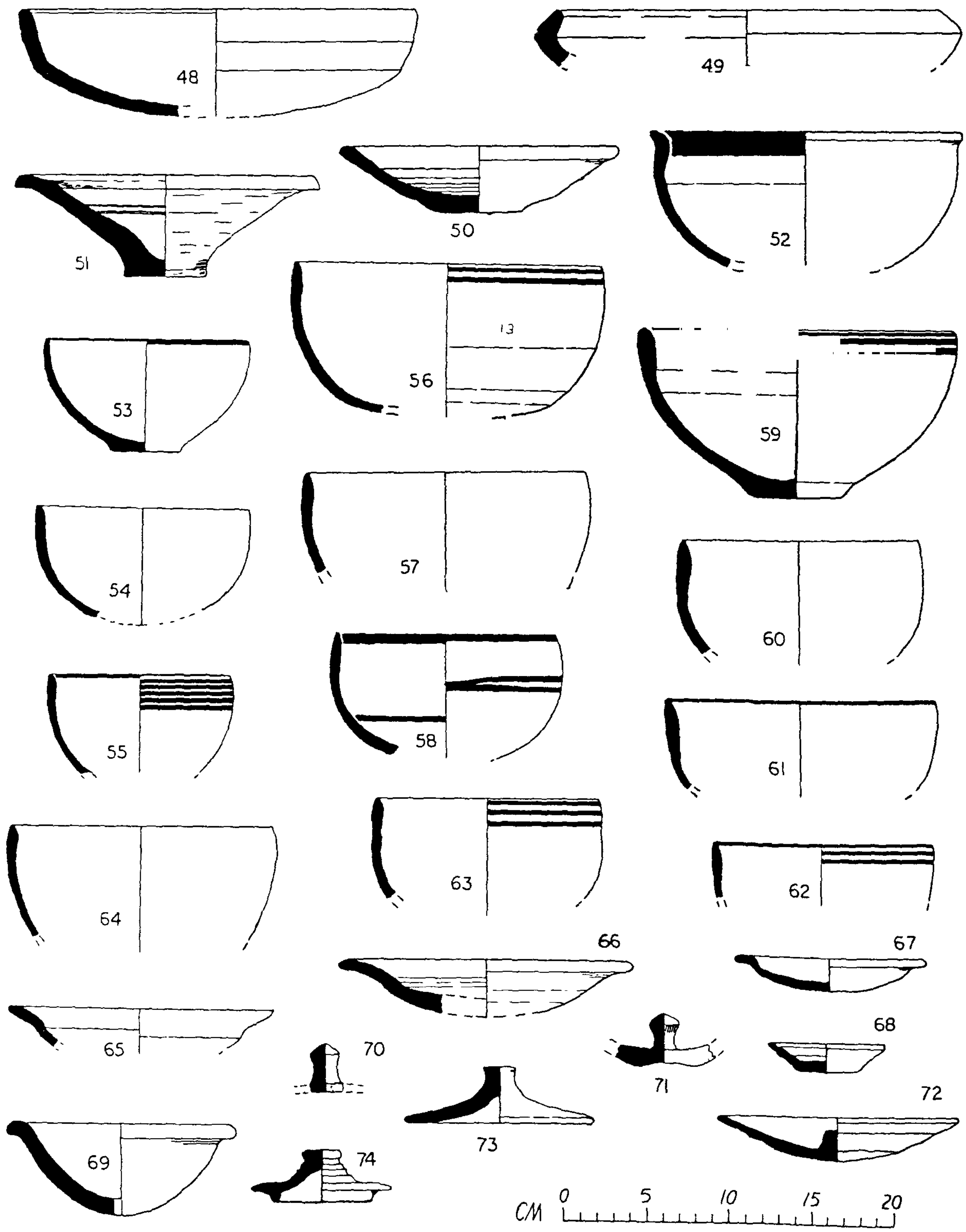


Fig. 43 Pottery.

43. A shallow basin having a rounded profile, an internally beaked and externally collared rim with a chamfered lower edge and a fully oxidized body. It is treated with red wash on the surfaces and decorated on the outside with black bands on the rim and shoulders. From a late level of Period I C.[1]

44. A shallow dish having a splayed out, internally beaked rim, a rounded profile and a fully oxidized body. It is treated on the inside with red wash over which are painted horizontal bands and double loops on the rim in black. From a late level of Period I C.[2]

45. A shallow dish having a curved profile, a collared rim slanting downwards and a fully oxidized body with surfaces treated with red wash. From a late level of Period I C.[3]

46. A shallow dish having a bluntly carinated rounded profile and an internally beaked short collared rim. Fully oxidized body with the surfaces treated with red wash. From a late level of the Period I C.[4]

47. A shallow dish with a collared and internally beaked rim, a rounded, fully oxidized body; it is treated internally with a red wash over which on the bottom and on the rim are painted horizontal bands and triple lined loops in black. From an early level of Period I C.[5]

Fig. 43

48. A shallow dish having a rounded bottom, slightly out going convex sides, a flat rim and a fully oxidized body treated on both the surfaces with red wash. From a late level of Period I C.[6]

49. A shallow dish having a rounded bottom, a slightly inturned rounded rim. and well-fired body, a buffish core and a similar wash. From an early level of Period I C.[7]

50. A shallow dish having tapering sides, a rounded rim and a flat string cut base. Its fully oxidized body is treated on both the surfaces with red wash. From a late level of Period I C.

51. A dish having a string-cut, small flat base, tapering sides and splayed out rim. Its fully oxidized body is treated with a red wash. From a late level of Period I C.

52. A deep bowl having a rounded profile, an internally clubbed outturned rim and a fully oxidized body. It is treated on the outside and partly on the inside with red slip. From an early level of Period I C.[8]

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[1] *I.A.R.* 1958-59, fig 9A.11 Rojdi.

[2] *ibid.*, fig. 22.69; *I.A.R.* 1957-58, fig. 8.10 Mehgam.

[3] Rao:1962, fig. 24.111.

[4] Casal:1964, fig. 93.49a (IIID); *I.A R.* 1957-58, fig. 7 Bhagatrav.

[5] Rao:1962, fig. 22.69.

[6] Mackay: 1943, Pl. XL.28 Jhukar.

[7] Casal:1964, fig. 83.496 (IIID).

[8] *I.A.R* 1958-59, fig 9A 4 Rojdi

53. A deep bowl having a curved profile, a shallow flat base and sharp rim with fully oxidized body. It is treated inside and outside with a thin red slip, over which a black rim band is painted. From a late level of the Period I C.[1]

54. A deep bowl with a curved profile and a featureless internally thickened rim with fully oxidized body. It is treated on the two surfaces with red wash. From a late level of Period I C.

55. A small deep bowl with a curved profile and an internally thickened rim with fully oxidized surfaces. It is treated on the rim in and outside and on the shoulder with painted bands in black. From an early level of Period I C.

56. A deep bowl with a curved profile and an internally thickened sharp rim with fully oxidized body. It is treated on the two surfaces with deep red wash, over which on the rim outside are two bands painted in black. From a late level of Period I C.[2]

57. A similar bowl with a well fired buffish body, treated over with light brown wash. From a late level of Period I C.

58. A similar bowl with a well fired buffish body, treated on the inside and on outside, save the rounded bottom, with a deep red wash, over which black horizontal bands are painted on both the surfaces. From an early level of Period I C.[3]

59. A deep large bowl with a curved profile, a small flat base and fully oxidized body. It is treated over with a red wash on both the surfaces. The rim is decorated with black bands. From a late level of Period I C.[4]

60. A deep bowl with a curved profile and an internally thickened sharp rim. It has a fully oxidized body with encrusted surfaces. From an early level of Period I C.

61. A similar bowl with a fully oxidized body and red washed surfaces bearing a thin black band on either side of the rim's edge. From an early level of Period I C.

62. A similar but small bowl with three bands painted in black on the exterior and one rim band on the interior. From a late level of Period I C.[5]

63. A similar but slightly bigger bowl with a fully oxidized body bearing a red wash on the exterior of which are painted three horizontal bands in black. From a late level of Period I C.[6]

64. A similar bowl with a fully oxidized body with surfaces treated over with red wash. From an early level of Period I C.

65. A small shallow dish having a rounded bottom, splayed sides and a featureless

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[1] Rao:1962, fig. 21.51.
[2] *ibid.*, fig. 21.53.
[3] *ibid.*, fig. 21.50.
[4] *I.A.R.* 1958-59, fig. 9A.2 Rojdi.
[5] *ibid.*, fig. 6.7 Bhagatrav
[6] *ibid.*, fig. 9A.5 Rojdi

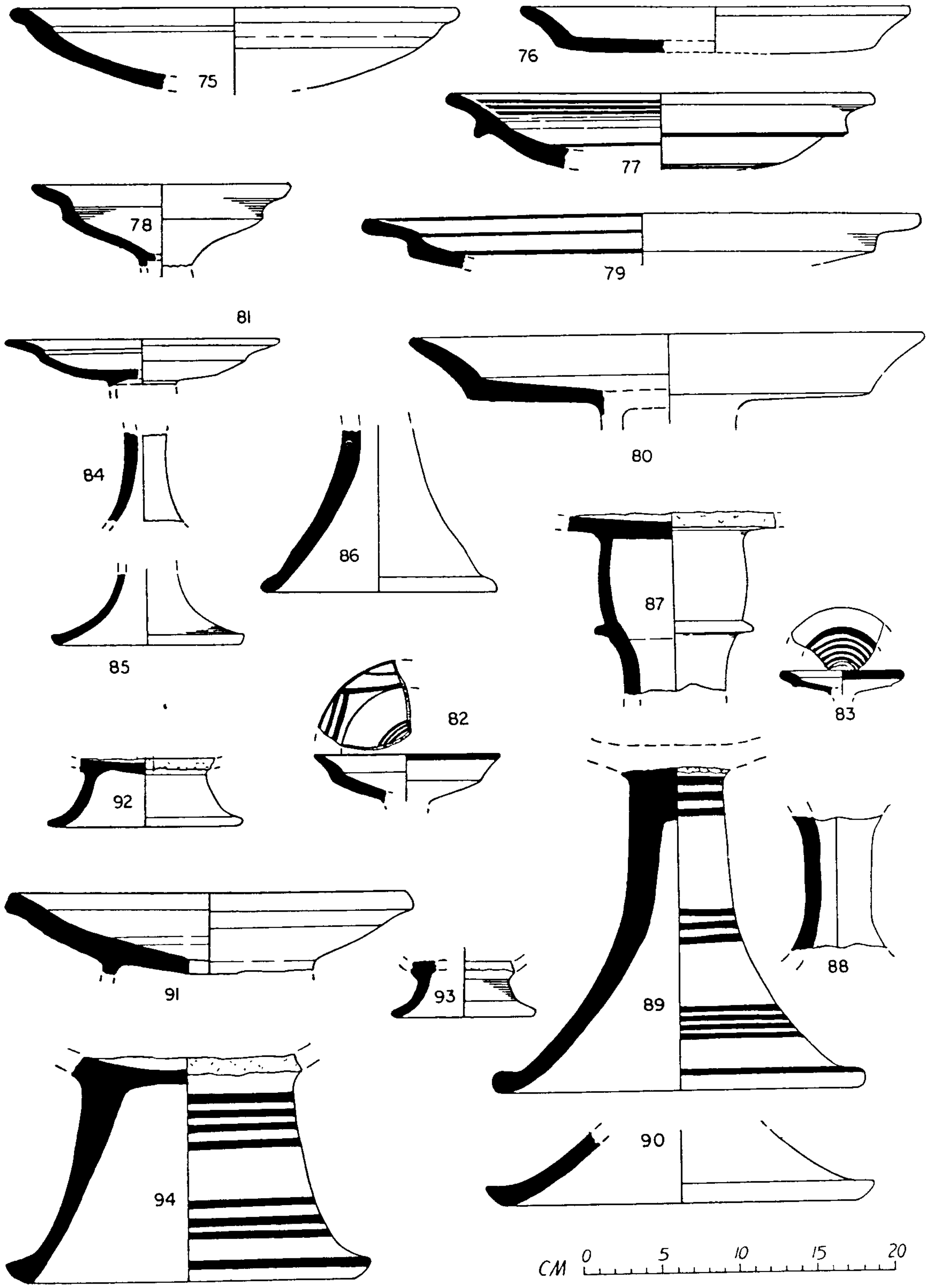


Fig. 44. Pottery.

rim with fully oxidized body. Its two surfaces are treated with deep red slip. From an early level of Period I C.

66. A shallow dish with a rounded bottom and a projected rim. It has a fully oxidized body treated with a red wash. From an early level of Period I C.

67. A small lid with a flattened bottom and tapering sides culminating in a featureless rim. Its fully oxidized body is treated with red wash. From an early level of Period I C.

68. A small lid with a flattened bottom and tapering sides culminating in a featureless rim. Its fully oxidized body is treated with red wash. From an early level of Period I C.[1]

69. A deep lid having a curved profile and a short projected rim with a hole in the rounded bottom. The surfaces of its fully oxidized body are washed in red. From a late level of Period I C.[2]

70. A conical central knob of a lid, fully oxidized and treated with red wash. From a late level of Period I C.[3]

71. A similar knob with a flat bottom of a lid having a semi oxidized body which is treated with red wash. From a late level of Period I C.[4]

72. A lid with a central knob, featureless rim and a rounded bottom bearing mat impressions. Its fully oxidized body bears red wash on both the surfaces. From an early level of Period I C.[5]

73. A lid with an external knob and splayed out sides culminating in a featureless rim; the fully oxidized body is treated with red wash on the two surfaces. From an early level of Period I C.[6]

74. A lid with an external knob and a prominently flanged rim. Its oxidized body is treated on both the surfaces with red wash. From an early level of Period I C.[7]

Fig. 44

75. A shallow dish with an outcurved internally beaked rim, bluntly carinated profile and a rounded bottom; the fully oxidized body has encrusted surfaces. From an early level of Period I C.[8]

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[1] Rao: 1962, fig. 23.90.

[2] Casal. 1964, fig. 90.465 (IIIC)

[3] Rao:1962, fig. 23.91.

[4] Casal: 1964, fig. 81.365 (IIIB); Mackay·1943, Pl. XXVI.25.26

[5] *ibid.*, Pl XXVI.33.

[6] *ibid.*, Pl. XXVI.45; Mackay:1937, Pl. LVII 1; Marshall: 1931, Pl. LXXXII.47.

[7] *ibid.*, Pl LXXXII.51; Mackay:1937, Pl. LVII.9; *ibid.*, 1943, Pl. XXVI.53, 57; Rao: 1962, fig. 23.89.

[8] *I A R.* 1957-58, fig. 8.9 Mehgam

76. A small dish with splayed out sides, a featureless rim and a flat bottom. Its fully oxidized body is treated with a dark brown wash. From a late level of Period I C.

77. A small dish with a featureless rim having a prominent flange below the tapering sides and a rounded bottom. Its fully oxidized body is treated with red wash and bears horizontal bands in black on both the surfaces. From a late level of Period I C.[1]

78. A deep bowl-on-stand with a tapering carinated profile and splayed out featureless rim. Its fully oxidized body is treated on both the surfaces with deep red slip. From an early level of Period I C.[2]

79. A shallow dish with a carinated profile and a splayed out featureless rim. Its fully oxidized body is treated on both the surfaces with a reddish-brown wash, on the inside of which are painted horizontal bands in black. From a late level of Period I C.

80. A large, shallow dish-on-stand with a splayed out featureless rim and a flat bottom. Its fully oxidized body is treated with deep red-brown wash. From a late level of Period I C.[3]

81. A shallow dish-on-stand with a splayed out featureless rim, carinated profile and a rounded base. Its fully oxidized body is treated on the two surfaces with red slip. From an early level of Period I C.[4]

82. A shallow bowl with a splayed out featureless rim and a carinated profile. Its oxidized body is treated on the two surfaces with bright red slip; it is painted on the inside with concentric bands on the bottom surface and double lined loops on the bottom and rim. From a late level of Period I C.[5]

83. An attached hole-mouthed lid of a bottle-necked bulbous bodied jar.Fully oxidized, it is treated on the outsides with red wash, over which are painted concentric bands in black. From a late level of the Period I C.

84. A fragment of a cylindrical stem of a dish-on-stand. Its fully oxidized body is treated on the outside with red wash. From late level of the Period I C.

85. A flaring sided base of a stem of a dish-on-stand, ending in a beaked edge. Its fully oxidized body is treated on the outside with red wash. From an early level of Period I C.[6]

86. A sloping sided bottom of a stem of a dish-on-stand bearing a shallow depression near the edge of the base. Its fully oxidized body is treated on the outside with red wash. From an early level of Period I C.[7]

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[1] *I.A.R.* 1958-59, fig. 9A.1, Rojdi; Rao:1962, fig. 38.37.

[2] *I.A.R.* 1958-59, figs. 9A.10 Rojdi; 23.R.13 Tapti.

[3] *ibid*: 1957-58, Rojdi; Mackay: 1943, Pl. XXV.7; Casal: 1964, fig. 84.388 (IIIC); Vats: 1940, Pl. LXX.12

[4] Khan: 1965, fig 12.16 (H)

[5] *I.A.R.* 1958-59, figs. IOB.10, 10C.13 Rojdi; *ibid.*, 1957-58, fig. 11.A.5 Sultanpur.

[6] Khan: 1965, fig 22.1a (PH).

[7] *ibid.*, fig. 24.20 (PH); Casal: 1964, fig. 48 80a (IB).

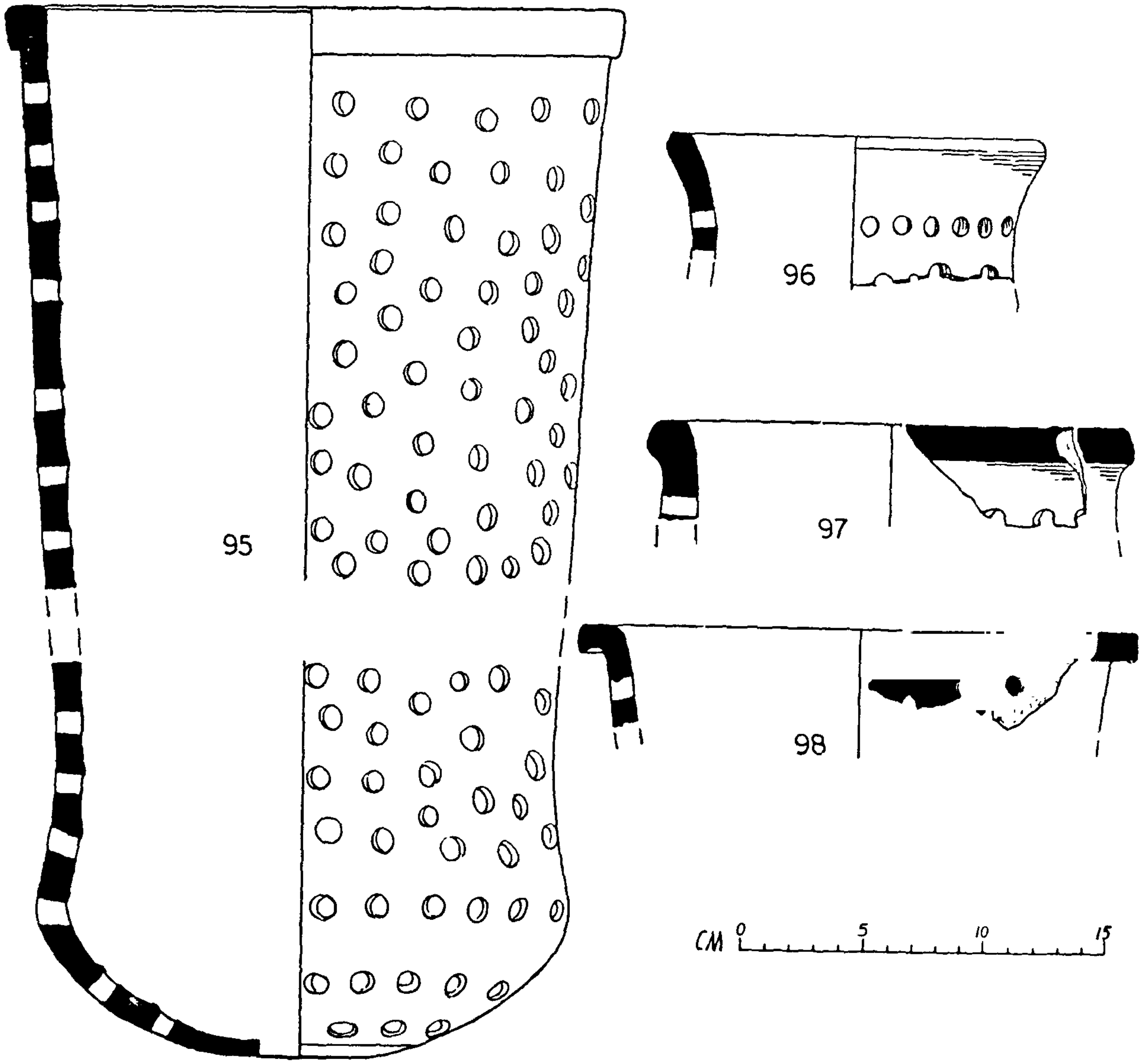


Fig. 45. Pottery.

87. A bulbous head having a pronounced flange above the cylindrical stem of a big dish-on-stand. Its fully oxidized outer surface is treated with red wash. From an early level of Period I C.[1]

88. A cylindrical fragment of a stem of a dish-on-stand. It is fully oxidized. The outer surface is treated with red wash. From an early level of Period I C.[2]

89. A cylindrical stem of a large dish-on-stand having a flaring base and a beaded edge. Its semi oxidized body is treated on the outside with red wash, over which groups of multiple horizontal bands in black are painted. From an early level of Period I C.[3]

90. A flaring base of a cylindrical stem of a large dish-on-stand with a sharp upturned edge. Its fully oxidized body is treated on the outside with dark reddish-brown slip. From an early level of Period I C.[4]

91. A shallow dish with rounded profile, featureless rim and a central hole, raised perhaps on a broad squattish stand. It is fully oxidized and treated on the inside with a deep red slip. From a late level of the Period I C.[5]

92. A flaring sided, squattish stand of a bowl or dish with fully oxidized body. It is treated on the inside and outside with reddish-brown wash. From a late level of Period I C.[6]

93. A similar semioxidized but shallow, squattish stand of a bowl. It is treated on the outside with reddish-brown wash. From an early level of Period I C.[7]

94. A very broad squattish looking stand with sloping sides ending in a beaked edge of a large dish or jar. It is fully oxidized, and on its two surfaces are painted groups of horizontal bands in black. From an early level of Period I C.[8]

Fig. 45

95. A perforated cylindrical jar with collared rim, carinated profile and a rounded bottom. The fully oxidized outside surface is powdery to touch. From a late level of Period I C.[9]

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[1] Casal: 1964, fig. 80.353 (IIIB); Mackay: 1937, Pl. LII.29.

[2] Khan: 1964, figs. 18. 14, 22.23 (PH).

[3] *ibid.*, fig. 14.19 (H), Mackay: 1943, Pls. XLI. 13 Jhukar: XXV.21; *I.A.R.* 1957-58, fig. 6.5 Bhagattrav; IIB 4 Rojdi; Rao: 1962, fig. 23.72

[4] *I.A.R.* 1958-59, fig. 9A 17 Rojdi; Casal: 1964, fig. 73.314 b (IIIB).

[5] *ibid.*, fig. 75.318 (IIIA), Mackay: 1943, Pl. LI.10 Jhukar; Marshall: 1931, Pl. LXXIX.5; Mackay: 1937, Pls. LV 1, LVII 31, LX 6; Khan: 1965, fig. 15.9 (H); 22.22 (PH); *I.A.R.*, 1957-58, fig. 8.9 Mehgam; Rao: 1962, fig. 23.76

[6] *ibid.*, fig. 13.73; Khan: 1965, fig. 22.14 (PH); Mackay: 1943, Pl. XXV.11; Casal: 1964, fig. 39.106 (IA)

[7] *ibid.*, fig. 48.82 (IB); Mackay: 1943, Pl. XL 13 Jhukar; Khan: 1965, fig. 15.17 (H).

[8] Khan 1965, figs. 22.16 (PH), 13.12 (H); Mackay: 1943, Pl. XLI.21, Jhukar; *ibid*:1937, Pl. LV.5; Marshall: 1931, Pl. LXXIX 2,3; Rao: 1962, fig. 29.33,37; Casal 1964, fig. 74.317 (IIIA).

[9] Marshall: 1931, Pl. LXXXIV 14, *I.A.R.* 1958-59, fig. 10.10 Rojdi.

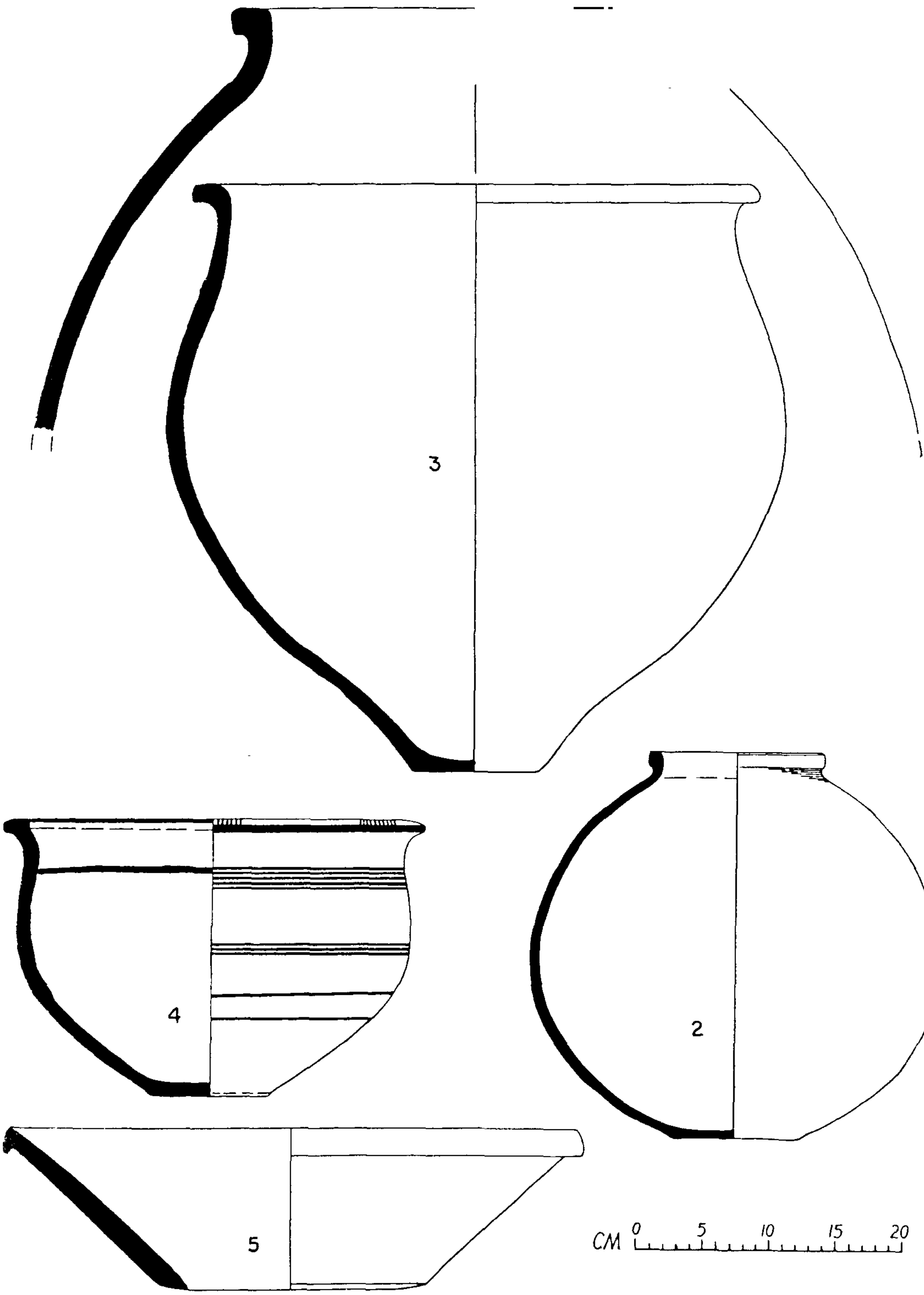


Fig. 46. Pottery.

96. A concave necked perforated jar with a featureless rim and fully oxidized body. It is treated on the two surfaces with red wash. From an early level of Period I C.

97. A perforated cylindrical jar with a collared rim and fully oxidized body It is treated on the surfaces with red wash, over which is painted a rim band in black. From an early level of Period I C.

98. A perforated, cylindrical jar with a short projected rim and a fully oxidized-body It is treated on the outside with a black brown wash. From an early level of Period I C.

Fig. 46

1. A low necked extra large storage jar with a short collared rim and a fully oxidized bulbous body. It is treated on the outside with a thick deep red slip, over which, on the rim and neck, is painted a broad black band. From a mid level of Period I C.[2]

2. A low necked bulbous jar with a short collared rim, a flat base and a fully oxidized body. It is treated on the outside with a dark brown slip. From an early level of Period I C.[3]

3. A sturdy storage jar with a short projected rim, broad mouth and only a slightly broader body tapering to a slender flat footed bottom. Semioxidized, the two surfaces are treated with a red wash. From an early level of Period I C.[4]

4. A deep basin with a concave neck, a short projected rim and a body tapering to a small flat bottom. Fully oxidized, the outer surface as well as the inner face of the rim and neck is treated with a deep-red wash, over which are painted multiple lined bands in black, besides the spaced groups of short strokes on the top of the rim. From a late level of the Period I C.[5]

5. Probably a mortar-funnel having an externally bevelled and undercut rim with tapering sides ending in a flat edge and fully oxidized body. It is treated with a red wash on both the surfaces. From an early level of Period I C.[6]

Fig. 47

1. A concave-necked jar having a short collared rim and fully oxidized bulbous body. It is treated on the outside with a red slip over which a broad band on the rim and two

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[1] *I A R*, 1958-59, fig 19 28

[2] Marshall 1931, Pl LXXXV 1; Mackay 1937, Pls. LVII 40, LVIII 12, LIX 4, LXII 45, 52 *ibid* 1943, Pls XXIV 4, XXXV 3, Casal 1964, fig 58 180 (IC), 71.289 (II B); Wheeler 1947, fig 21 XLb

[3] Marshall 1931, Pl LXXXVI 21, Vats 1940, Pl LXX 15, Mackay 1937, Pls LII 32, LIII 2, *ibid*, 1943, Pl XXIV 3, Wheeler 1947, fig 13, VIa; 15 X, *I A R*. 1958-59, fig 9B I Rojdi

[4] Marshall 1931, Pl LXXXIV, 24, Vats 1940, Pl LXX.1; Casal 1964, fig 87 422 (IIIC), Mackay 1937, Pls LVII 43, LVIII 15, LCII 50-51, LXV 43

[5] Marshall 1931, Pl LXXXIV 21, Vats. 1940, Pl. LXXV 2,6, Casal 1964, fig 86 421 (III C)

[6] Mackay 1943, Pl XL 30 Jhukar

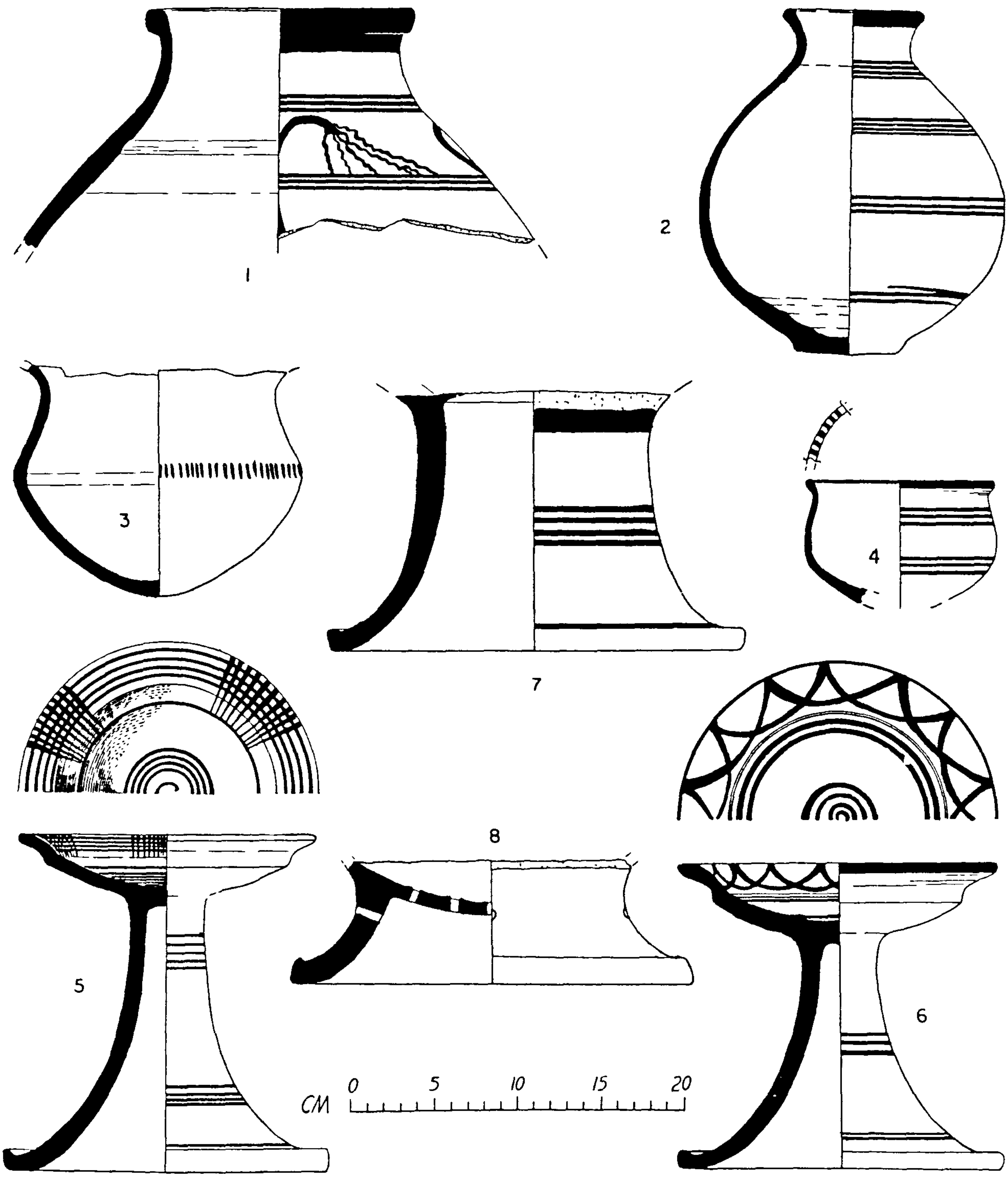


Fig. 47. Pottery.

triple lined bands on the shoulder with loops in between and ending in multiple wavy tassels, are painted. From a late level of Period I C.[1]

2. A concave-necked jar having small collared rim, bulbous body and a small, flat bottom. It is fully oxidized; the outer surface is treated with a red slip, over which multiple lined, horizontal bands in black are painted. From a late level of Period I C.[2]

3. A concave necked and wide mouthed cooking vessel with a carinated profile and semi oxidized body. It is treated on the outside and above the carination with a deep red slip; the rounded-bottom has a roughened soot-marked surface. On the carination the pot is decorated with short, vertical incisions. From a late level of Period I C.[3]

4. A deep basin with a short collared rim and rounded bottom. Its fully oxidized body is treated on the outside with a red wash, over which multiple lined bands on the body and short strokes on the rim are painted in black. The thickening bottom suggests the existence perhaps of a footed base. From a late level of Period I C.[4]

5. A dish-on-stand with a carinated dish having a featureless splayed rim and a high flaring pedestal with a slightly raised edge. Though fully oxidized, its over-fired body is treated on the outside with a red slip, over which two multiple-lined bands in black on the pedestal and concentric circles crossed by spaced groups of short lines on the rim, and a spiral on the bottom of the dish are painted. From an early level of Period I C.[5]

6. A similar dish-on-stand with a slightly deeper dish having a carinated profile and splayed out featureless rim. Its fully oxidized body is treated with a red slip, over which bands in black on the rim and base and a triple lined band on the middle of the stand and on the inside of the dish a spiral in the middle, concentric circles on the periphery and intersecting arches on the rim are painted. From a late level of Period I C.[6]

7. A broad and squattish stand of a dish having a flaring base. It is fully oxidized and the outer surface is treated with a deep red wash over which a broad band on the top, a thin band on the base and a multiple lined band in the middle are painted in black. From a late level of Period I C.[7]

8. Raised edges of a low flaring stand of a perforated bottomed jar. The stand has four holes on the sides. It is fully oxidized and treated on the outside and the inside bottom with red wash. From a late level of Period I C.

Fig. 48

1. A neckless basin or jar with an out curved rim and a convex profile. Its fully

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[1] *I.A.R.* 1955-56, fig. 6, Nagda.

[2] Marshall: 1931, Pl. LXXXIII.R; Vats 1940. Pl. LXXV.!,4; Mackay: 1937, Pl. LV 25,Rao: 1962, fig 18 15, 18a; *I.A R.* 1958-59, fig 24.13 Alamgirpur.

[3] *ibid.*, fig. 9B.4 Rojdi.

[4] *ibid.*, fig 24.8 Alamgirpur.

[5] *ibid*., fig. 9B 10, 10 13; *ibid*., 1957-58, Pls. IIA.1, IIB 3 Rojdi.

[6] *ibid*., Pl. IIA.5; *ibid.*, 1958-59, fig 9A. 10 Rojdi

[7] Mackay: 1943, Pl. XXV 25;Casal: 1964 fig. 74.317; Rao: 1962, fig 28.33,37

oxidized body is treated with a red slip over which on the rim and the shoulder horizontal bands are painted in black. Below it are spaced squares filled with a mat pattern and slanting lines in a group. From a late level of Period I C.[1]

2. A medium high necked jar having a collared rim and a bulbous body. It is fully oxidized and treated with a red slip over which are painted horizontal bands in black on the rim, the neck and the shoulder, below which are suspended mesh filled columns over the body. From a late level of Period I C.[2]

3. A low concave necked jar with a short collared rim, bulbous fully oxidized body. It is treated on the outside with a red slip. Painted over are multiple horizontal bands in black on the shoulder over which are placed solid circles and a rim band. From an early level of Period I C.

4. A concave necked jar with a short projected rim and a bulbous, fully oxidized body. It is treated with a red slip on the outside, over which black bands on the rim, shoulder and the body are painted. Over the latter mat-patterns are formed by putting in vertical lines in spaced groups. From a late level of Period I C.

5. A wide mouthed *handi* with a bulbous profile and constricted neck with a short projected rim. It is fully oxidized and the outer surface is treated with a red slip, over which multiple horizontal bands crossed over in the middle by short vertical strokes are painted in black. From a late level of the Period I C.[3]

6. A concave necked jar with a bulbous, fully oxidized body. It is treated with a red slip and a black painted pattern as above. From a late level of Period I C.[4]

7. A vertical necked jar having a short beaked rim with a prominent ridge below. It is fully oxidized. The surfaces are treated with red wash, over which erratic dots on the inside, horizontal lines on the rim top and solid dots over multiple rim bands on the outside are put in black. From a late level of Period I C.

8. A similar bulbous necked jar with a fully oxidized body. It is treated with a red wash, over which multiple solid dots in black, arranged in an horizontal layout are painted. From a late level of Period I C.[5]

9. A deep bowl with a sharp everted rim, convex profile and fully oxidized body. It is treated with red wash, over which multiple-lined horizontal bands within spaced mat patterned squares are painted in black. From a late level of Period I C.[6]

10. A deep bowl with a featureless rim and a rounded profile. It is treated with buffish white slip on the two surfaces of a fully oxidized body. On both the surfaces

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[1] Rao. 1962, fig 36 C6.

[2] Fairservis:1959, fig 336. 41 9 Jangal painted

[3] Casal 1962, fig 65 224 (ID), Stein 1937, Pl XXI 9; *I A R* 1958-59, fig 9B. 7 Rojdi

[4] Casal, 1964, fig 65 224 (ID), Stein: 1937, Pl XXI 9, *I A R* 1958-59, fig 9B 7 Rojdi

[5] Majumdar 1934, Pl XXIII.30 Trihni, 39 Shah Hasan

[6] *I A R* 1958-59, fig 9B 8, R. 16, Rojdi

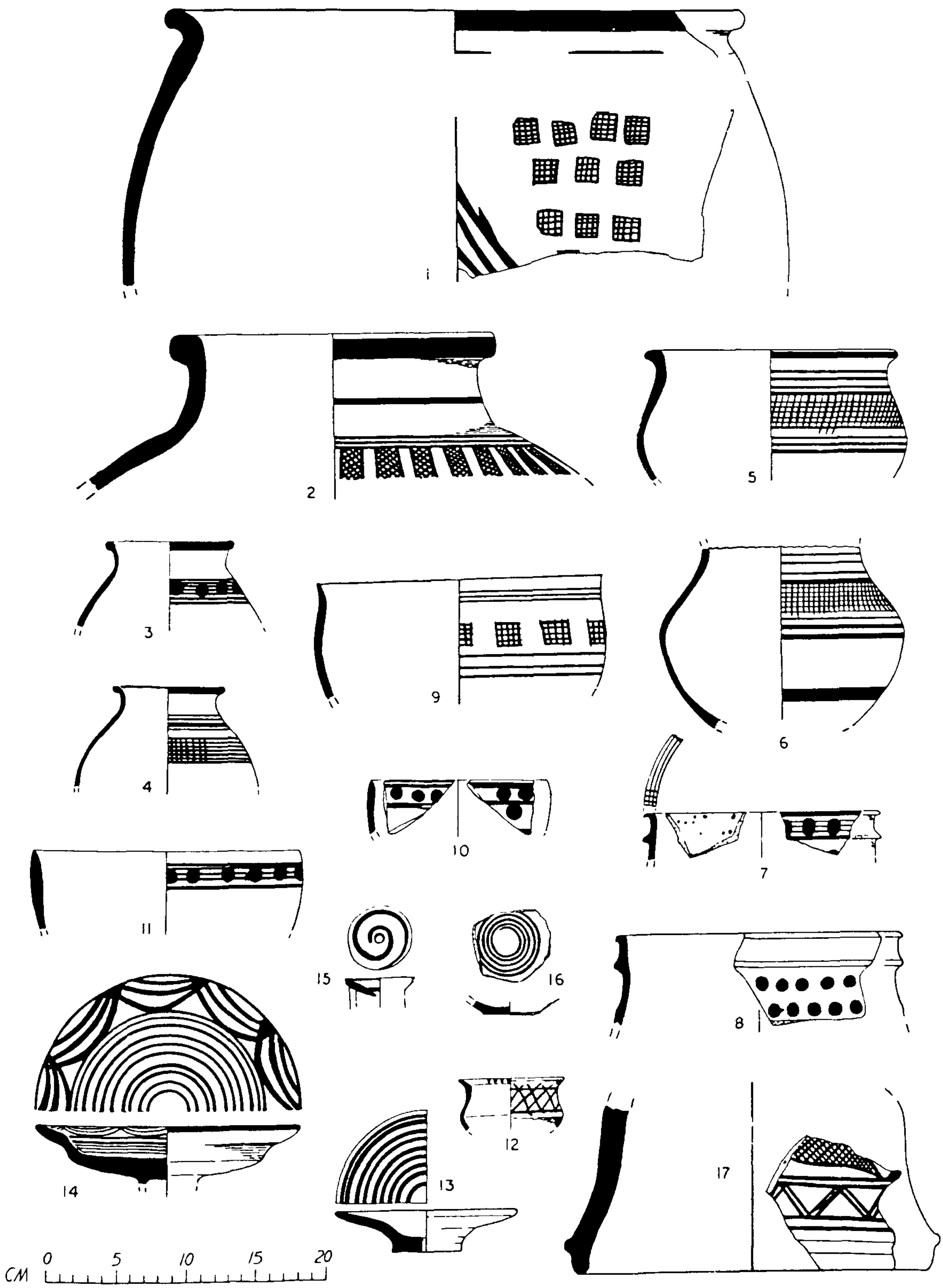


Fig 48. Pottery.

horizontal bands with solid dots are painted in black. From a late level of Period I C.[1]

11. A deep bowl with a bud shaped rim with rounded profile and fully oxidized body having a tan wash on both the surfaces; over it on the outside solid dots over a multiple horizontal band are painted in black. From a late level of Period I C.

12. A miniature *handi* like vessel with short outcurved featureless rim, bulbous profile and a fully oxidized body. It is treated on the outside with red wash. Over it a broad band filled with a mesh pattern is painted in black on the shoulders. From a late level of Period I C.

13. A lid with splayed out sides and a projected flat bottom with a central hole. On the inside the oxidized-body is treated with red wash. Multiple concentric bands are painted in black. From a late level of Period I C.

14. A dish-on-stand with a carinated profile and an outturned featureless rim. Its fully oxidized body is treated on the two surfaces with red wash, over which, on the inside, multiple concentric bands on the bottom and triple lined loops on the rim, are painted in black. From a late level of Period I C.[2]

15. An attached hole-mouthed lid of a bottle-necked bulbous jar. The fragment is fully oxidized and treated with a red-slip on the outside, over which is painted a spiral in black. From a late level of Period I C.[3]

16. A fully oxidized small flat base, treated on the inside with a red wash over which a spiral is painted in black. From an early level of Period I C.[4]

17. A sturdy concave sided jar stand with a ridge a little above the flat edged base. It is fully oxidized, and the outer surface is treated with red slip, over which above the ridge, double zigzag lines slanting in opposite directions are painted and above it, separated by a double lined horizontal border, concave-sided squares filled with mesh-patterns are painted. From an early level of Period I C.[5]

Fig. 49

18. A body fragment of a fully oxidized bulbous jar. It is treated on the outside with a red slip, over which multiple horizontal bands in black are painted on the shoulder and on the body within double lined bands mesh-filled lenticulates slanting in opposite directions are painted in black. From a late level of Period I C.[6]

19. A body fragment of a well fired, jar with buffish core. It is treated with a greenish-buff slip over which, within horizontal bands, double lined arches with groups

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[1] Majumdar, 1934 Pl XXIII 25. Trihni; Fairservis: 1959, fig 343 48 a Periano painted.

[2] *I A R* 1958-58, fig 11 A 4 Rojdi, *ibid* . 1958-59, fig 9A 10 Rojdi

[3] Mackay 1943, Pl XLVIa Jhukar

[4] Mackay 1943, Pl XXVI 6, *ibid*, 1943, Pl. LX.9.12; Khan, 1965, fig. 23 1 (PH); Wheeler 1947, fig 23 XLV d. Rao 1962, fig 23 93

[5] Mackay 1943, Pl. XLIV, 11 Jhukar.

[6] *ibid* . Pl XLIV 14; Fairservis 1961, fig 108 53 Gardan Reg

of vertical lines in between and a solid dot at the meeting corners are painted in black. From a late level of Period I C.

20. A body fragment of a fully oxidized jar with a red wash over which mesh filled concave sided squares with solid squares and solid dots filling the vacant spaces are painted in black. From an early level of the Period I C.[1]

21. A body fragment of a fully oxidized jar. It is treated with a red wash, over which, above the multiple horizontal bands,concave sided mesh filled squares in black are plinted. From a late level of Period I C.[2]

22. A fully oxidized sherd treated on the outside with red wash, over which concave based triangles with mesh filled patterns within horizontal bands are painted. From a late level of Period I C.

23. A body fragment of a small jar with fully oxidized body. It is treated on the outside with a red wash. Over it linear borders within concave sided squares filled with mesh-patterns are painted. From a late level of Period I C.[3]

24. A body fragment of a fully oxidized jar with red washed outer surfaces; over it multiple linear bands enclosing mesh-filled pendant triangles with convex-base and concave-sides are painted in black. From a late level of Period I C.[4]

25. A fully oxidized fragment treated with a red wash bearing mesh filled ovals atop a similarly filled-in band in black. From a late level of Period I C.[5]

26. A fully oxidized shoulder fragment of a sturdy jar, with a red washed surface; mat filled arches alternating with pendant triangles within multiple horizontal bands are painted over it. Below, the body surface is treated with a dark tan slip. From a late level of Period I C.[6]

27. An overburnt body fragment of a jar, treated on the outside with a greenish-buff slip over which, within horizontal bands, pendant triangles filled in with a mesh-pattern and solid dots on the three corners are painted in dark black-brown. From an early level of Period I C.[7]

28. A body fragment of a fully oxidized jar, decorated with multiple horizontal bands enclosing pendant triangles filled in with mesh pattern and solid dots on the corners are

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[1] Casal: 1964, fig. 96.529 (IIID); Marshall: 1931, Pl. LXXXIX.5; Majumdar: 1934, Pls. XV.33 Jhukar, XXII.18 Chanhudaro.

[2] *ibid.*, Pl. XXII.6 Chanhudaro; Marshall: 1931, Pl. LXXXIX.5; Mackay:1943 Pl. XLVI.11 Jhukar; Casal: 1964, fig. 95.51 (IID)

[3] *ibid.*, fig. 96.535 (IIID); Majumdar: 1934, Pl. XVI.18 Jhukar.

[4] Mackay:1943, Pl. XLIV.9 Jhukar; Casal: 1964, fig. 95.516 (IIID).

[5] Fairservis:1961, fig. 107.44 Gardan Reg.

[6] Casal: 1964, figs. 82 374, 86 411, 90.453 (IIIC); Mackay: 1933, Pl. LXX.40.1,7; Marshal: 1931, Pls. LXXXIX.15; LCI.25; Majumdar: 1934, Pl XXII.28 Chanhudaro.

[7] Fairservis:1950, figs. 257.50, 272.9 KGM Black Over Red; *ibid*:1959; figs 62.3, 24, 386.8-10

painted in black on the periphery of the red slipped region. From early level of Period I C.

29. A fully oxidized fragment treated with a dirty cream slip, over which mesh-filled slanting squares with solid dots at the meeting corners are painted. From the late level of Period I C.[1]

30. A fully oxidized sherd with a dusty cream slip, over which within bands, pendant triangles in black with curved bases and filled-in mesh-patterns are painted. From an early level of Period I C.[2]

31. A fully oxidized body fragment of a bulbous jar treated on the outside with a red slip, over which, within horizontal bands, slanting squares filled in with mesh-patterns are painted in black. From a late level of Period I C.[3]

32. A fully oxidized sherd bearing a red slip over which hatched lenticulates are painted in black. From an early level of Period I C.[4]

33. A fully oxidized body sherd of a bulbous jar bearing red wash on the outside. Over it, within bands, hatched lenticulates slanting in opposite directions are painted in black. From an early level of Period I C.[5]

34. A fully oxidized sherd with a smoky-cream wash on the outside over which crosshatched lenticulates on bands are painted in black. From a late level of Period I C.[6]

35. A fully oxidized sherd treated with a creamy red slip on the outside, over which a mat filled lenticulates within an arch are painted in black. From a late level of Period I C.[7]

36. A fully oxidized sturdy sherd treated with a creamy red slip, over which, within bands, mesh filled lenticulates slanting in opposite directions are painted. On either side multiple lines are emanating from a focal point and ending in a solid dot in black. From an early level of Period I C.[8]

37. A fully oxidized sherd, bearing a red wash on the outside; over it the mesh-filled body of a bird is painted in black. From an early level of Period I C.

38. A fully oxidized sherd treated with a tannish red wash on the outside and

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[1] Mackay:1943, Pl. XLIII.7; *I.A.R.* 1957-58, fig. 12.13 Dad.

[2] Fairservis:1956, fig. 294.325 Quetta Ware; *ibid*; 1959, fig. 396.117-19 Jangal painted.

[3] Mackay: 1943, Pl. XLIV.2.

[4] Vats: 1940, Pl. LXVII.28-30; Fairservis. 1959, fig. 414.331 Periano painted.

[5] Mackay:1943, Pls. XLIII. XLIV; Majumdar: 1934, Pl. XXIII.26 Trihni; *I.A.R.*, 1958-59. Pl. LXIV Alamgirpur.

[6] Fairservis:1961, figs. 107.4D, 41, 45, 46, 48; 108.49, 50 Gardan Reg.

[7] Fairservis: 1961, fig. 107.47 Gardan Reg; Casal: 1964, fig. 93.497-8 (IIID).

[8] *I.A.R* 1956-57, Pl XVII A 11 Lothal; *ibid*; 1962-63, fig. 2. AE Kalibangan; Fairservis: 1956, fig. 273 18 KGM Black over Red; *ibid*; 1959, figs. 62.4, 25; 386 11, Stein 1937, Pl. XXIII.34.

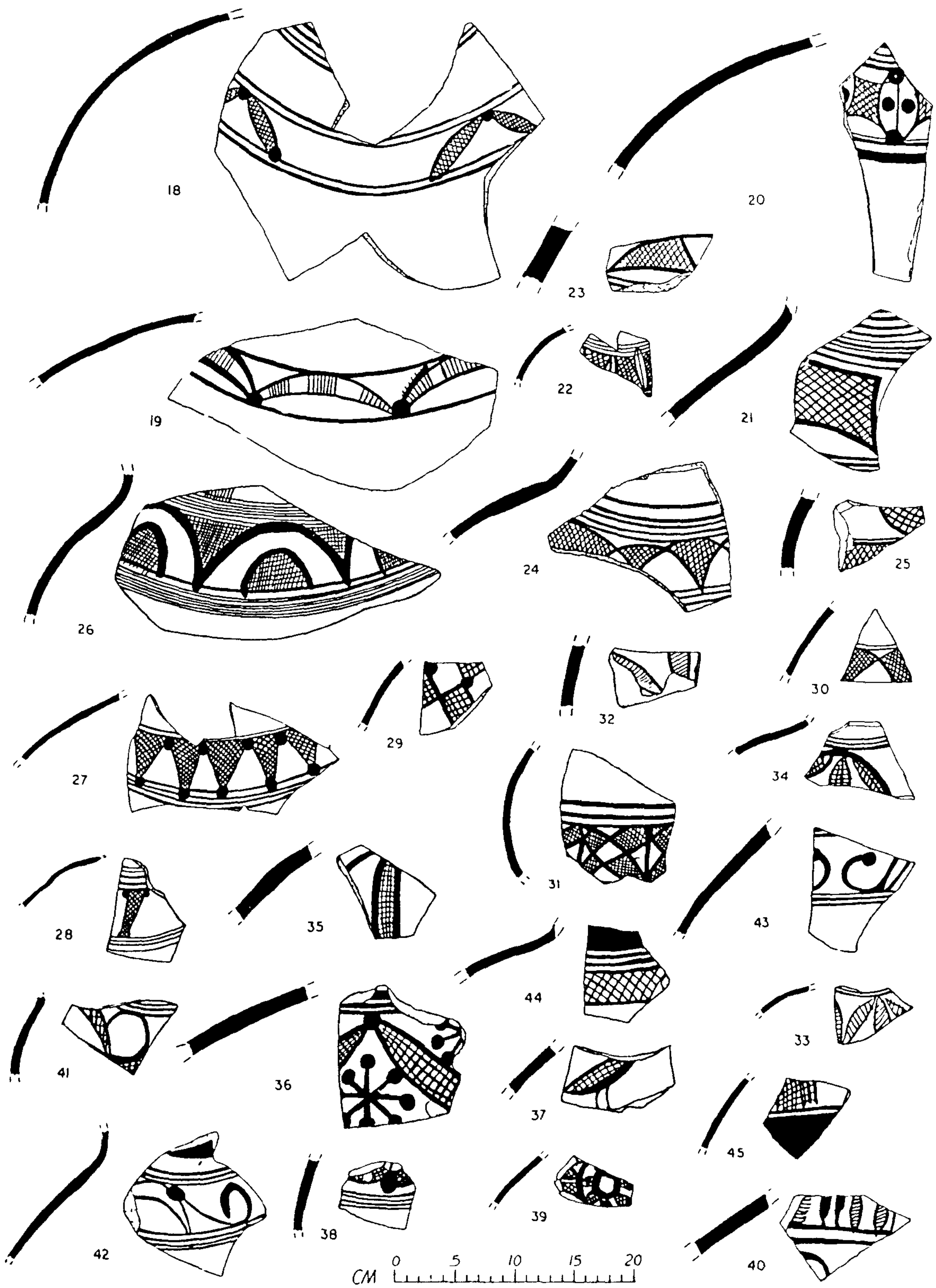


Fig. 49. Pottery.

painted with horizontally placed meshed lenticulates with a solid dot in between in black. From a late level of Period I C.

39. A fully oxidized sherd treated on the outside with a red slip, over which concentric circles filled in with rayed and cross-hatched lenticulates in black are painted. From a late level of Period I C.[1]

40. A fully oxidized sherd treated on the outside with a red wash, over which above horizontal bands hatched lenticulates are painted in black. From a late level of Period I C.[2]

41. A fully oxidized sherd treated on the outside with a red wash, over which mesh-filled arches ending in a curved loop within bands are painted in black. From a late level of Period I C.

42. A fully oxidized shoulder fragment of a bulbous jar, treated on the outside on the shoulder and body with tan slip. In between, over the natural red space single arches within bands and dot-tipped lines ending in curves are painted in black. From a late level of Period I C.

43. A fully oxidized sturdy sherd treated with red slip above and below. In between, on the natural red spaces, slanting lines that curve backwards and end in dots are painted within bands in black. From an early level of Period I C.[3]

44. A fully oxidized sherd treated on the outside with a red wash, over which solid and mesh fitted horizontal bands are painted in black. From a late level of Period I C.[4]

45. A well fired sherd with a buff core and buffish brown wash. Over it mesh filled columns standing over solid black bands are painted in black. From an early level of Period I C.

Fig. 50

46. A fully oxidized body sherd treated with a dark red slip, over which multiple horizontal bands crossed over by spaced groups of short vertical strokes are painted in black. From a late level of Period I C.

47. A fully oxidized concave sided fragment, perhaps, of a jar stand. It is treated with a red slip on the outside. Over it zigzags slanting in opposite directions are painted in between horizontal bands in black. From a late level of Period I C.[5]

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[1] Majumdar: 1934, Pl. XXIII.27 Trihni; Stein: 1929, Pl. XIV. D 16.

[2] Mackay 1943, Pl. XLVI. 23. Jhukar; Casal: 1964, fig. 92,486; Marshall: 1931, Pl. XCII. 2; Fairservis 1956. fig. 296.290 Quetta Ware; *ibid*: 1959, figs. 18.310 n, o; 401.182-4 Kechi Beg Polychrome; 418.381, 383 Periano painted; Stein:1929, Pl. XX.S.J.33.

[3] Casal: 1964, fig. 96.528.29 (IIID).

[4] Mackay: 1943, Pl. XLVI.30.

[5] Stein: 1929, Pl. XI MM.N.50

48. A neckless basin or a jar with an externally bevelled rim and a convex profile. On the outside, over a bright red slip, vertical lenticulates with a wavy line inside and joined by curved lines with frayed sides are painted in black within bands. From a late level of Period I C.[1]

49. A fully oxidized sherd with a red slip outside. Over it intersecting circles with a rayed solid oval in between are painted in black. From a late level of Period I.C.[2]

50. A fully oxidized sherd with a greyish cream slip on the outside. Over it are painted, within bands, dark brown lines converging in opposite directions from a solid dot on the joints. From a late level of Period I C.

51. A fully oxidized sherd, treated with a red slip, over which are drawn, within bands in black, groups of three lines, emanting from a dot above and ending in dots below. From an early level of the Period I C.

52. A fully oxidized sherd treated on the outside with a cream slip over which, within bands, are multiple intersecting arches ending in dots below in black. From a late level of Period I C.

53. A fully oxidized sherd, treated with a red wash, over which are painted, within bands, double lined arches, filled, on either side, with hanging wavy lines in black. From an early level of Period I C.

54. A fully oxidized body fragment of a bulbous jar, bearing over a red washed surface multiple horizontal bands superimposed by solid dots in black. From a late level of Period I C.

55. A fully oxidized body shard of a bulbous jar treated with a red wash on the outside, and decorated with multiple lined bands superimposed by groups of solid dots in black. From a late level of Period I C.

56. A low necked bulbous jar treated with a red wash, over which are multiple bands superimposed by solid dots on the shoulder in black. From a late level of period I C.

57. An almost similar vessel with an analogous design in black over red. From a late level of Period I C.

58. A fully oxidized sherd, which is only a variant both in form and decoration. From an early level of Period I C.[3]

59. A fully oxidized sherd treated with a red wash, over which multiple horizontal bands enclosing solid dots are painted in black. From an early level of Period I C.[4]

60. A fully oxidized body fragment with a variant pattern painted in black over red. From a late level of Period I C

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[1] Majumdar: 1934, Pl. XXIII 41 Shah Hasan

[2] *ibid.*, Pl. XXIII.2 Trihni

[3] *I.A.R.* 1957-58, fig. 10 9 Adkot.

[4] *ibid.*, 1956-57, Pl XIII A. 18 Lothal

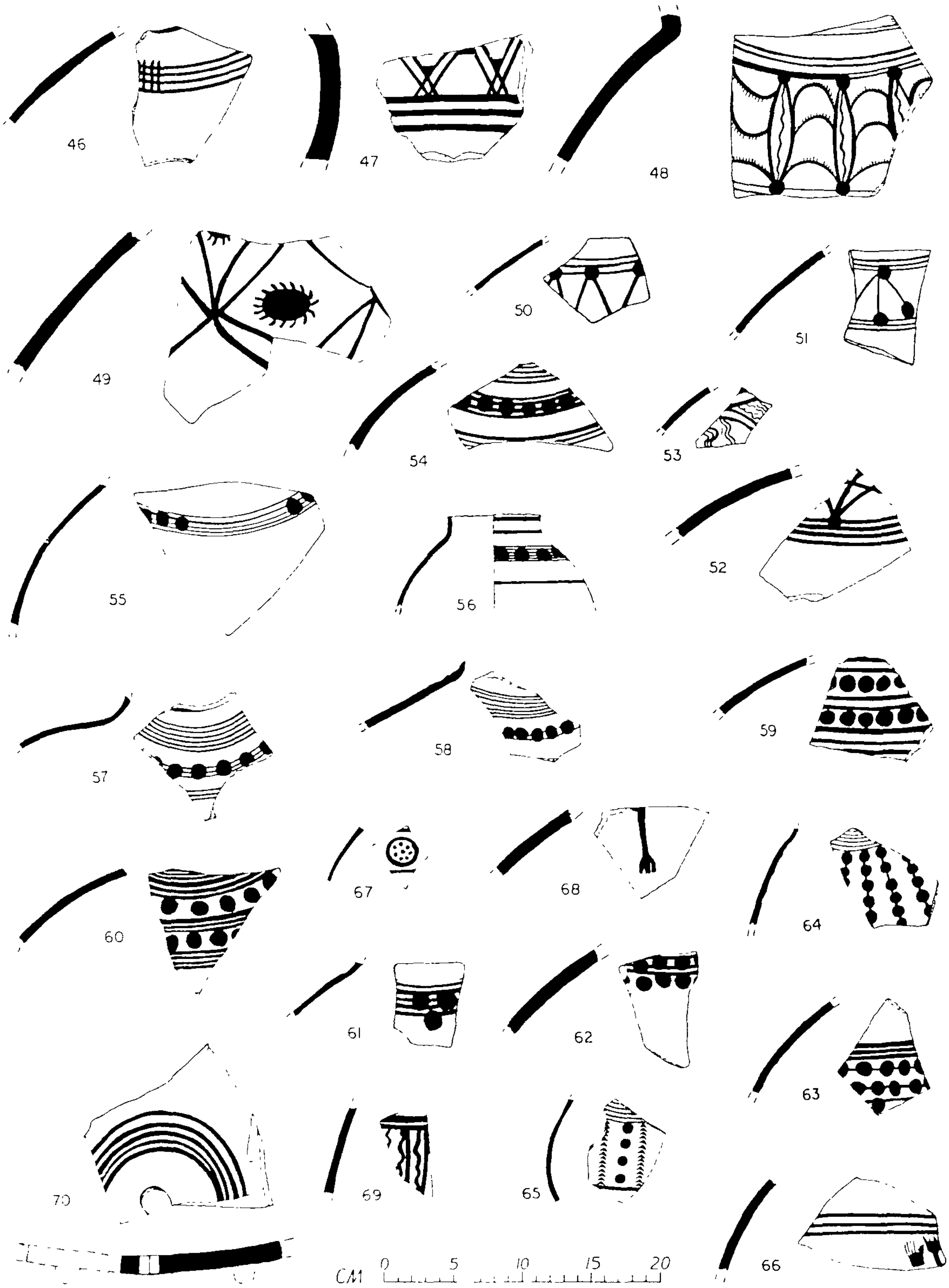


Fig 50 Pottery

61. A shoulder fragment of a fully oxidized, red-washed jar, having multiple bands, superimposed with triple dots in black. From an early level of Period I C.

62. A fully oxidized shoulder fragment of a red-washed jar, bearing a pattern of a double lined band having a row of dots each above and below in black. From a late level of Period I C.

63. A fully oxidized shoulder fragment of a bulbous jar, treated with a red wash and painted with connected dots in between horizontal bands in black. From a late level of Period I C.

64. A fully oxidized sherd with a red wash outside, painted with horizontal neck-bands from which are suspended multiple lines, superimposed with dots in black. From a late level of Period I C.

65. A fully oxidized body sherd of a bulbous jar, treated with a red wash on the outside. It is decorated with multiple lined neckbands, below which stand rows of spaced dots separated by vertical rows of broad triangles or arrowheads in black. From a late level of Period I C.[1]

66. A fully oxidized body sherd, treated on the outside with a red wash, over which, below a triple band, double solid dots with short strokes on the top and a line below, reminiscent either of palms or human heads, are painted in black. From an early level of Period I C.

67. A small semioxidized sherd bearing a red wash, over which, within horizontal bands, a circle filled with multiple dots is painted in black. From an early level of Period I C.[2]

68. A fully oxidized sherd treated with a red slip, over which a vertical line ending in a frayed-based triangle reminiscent of a cow's tail is painted in black. From an early level of Period I C.

69. A fully oxidized sherd, treated with a red wash, over which, below horizontal bands, straight and suspended wavy lines are painted in black. From an early level of Period I C.

70. A slightly curved bottom of a dish with a central hole and remnants of a wide and squattish stand below. The inner surface, treated with a red wash, is decorated with multiple concentric bands in black. From an early level of Period I C.[3]

Fig. 51 (upper half)

1. A concave necked jar with a featureless rim, bulbous profile and a buffish core having a black streak in the middle; it is treated on the interior with a light brown wash

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[1] Stein: 1931, Pls XXII Kul V vii 1; vi i, XXVI Nun 23; *ibid.*, 1936, Pl XXVI 13.14

[2] Stein: 1937, Pl XXII 23

[3] Mackay: 1937, Pl. LII.16 upper

and on the exterior with a thick buff slip. Over it are painted in light brown thin and thick horizontal bands crossed over with groups of short vertical strokes. From an early level of Period I C.

2. A concave necked jar with a featureless rim, bulbous profile and an even buff core; it is treated on the two surfaces with a greyish black slip. On the inside. the rim is decorated with multiple vertical strokes above a double lined band in dark grey black. From an early level of Period I C.

3. A low necked jar with a beaded rim, bulbous profile and an even buff section. On the neck outside traces of a reddish brown slip are discernible. From an early level of Period I C.

4. A concave necked jar with perhaps a featureless rim, bulbous profile and a buff section having a thick black streak in the middle. The concave neck region appears to have been trimmed with a sharp instrument. The inside and the outside of the rim has burnt black and the rest of the surface is burnt buff. On the shoulder thick bands crossed over by thin vertical strokes are painted in dark brown-black. Below another light brown double lined border are arches with the triangular column-spaces filled with a mesh pattern in the same colour. From an early level of Period I C.

5. A concave necked jar perhaps with a featureless rim, bulbous profile and a buff core. The body is treated on the inside with a yellowish red wash. On the outside the shoulder region is decorated with multiple brown bands crossed over by multiple vertical strokes forming a mat pattern over a whitish buff surface. Below is applied an yellowish red slip. From an early level of Period I C.

6. A body sherd of a bulbous jar with an even buff body. It is treated on the outside with a similar hued slip. Over it are painted horizontal bands having in between a mat filled doubled lined low arch, widening in the middle in dark reddish-brown pigment. From an early level of Period I C.

7. A shoulder fragment of a bulbous jar with an even buff body. It is treated on the outside with a yellowish cream slip. Over it multiple bands in reddish-brown pigments are painted. Below this is perhaps a down turned palm motif. From a late level of Period I C.[1]

8. A body fragment of a bulbous jar with an even whitish buff body, over which multiple horizontal bands in light brown are painted; above which, inside a mat patterned column, are standing groups of wavy lines enclosing a circle with projecting hooks inside. From a late level of Period I C.[2]

9. A deep bowl with a rounded profile and an internally thickened sharp rim, an uniform buff body, bearing traces on the outside of a brownish wash. From a late level of Period I C

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[1] Fairservis 1959, fig 334 39 m Jangal coarse, Stein 1937, Pl XXV 47

[2] Mackay 1943, Pl XLV 1,5 14 Trihni, Majumdar 1934, Pl XXIII 3 Trihni

10. A similarly formed and fired bowl; it is treated on the outside and inside of the rim with a deep red slipped band. Below it, on the outside, are multiple bands crossed over with groups of short vertical strokes in brown. The body below is treated with a deep red slip. From a late level of Period I C.

11. A ring-footed base of a bulbous jar with a rounded bottom and an even buff body which bears on the outside, some traces of a yellowish red wash. From an early level of Period I C.

12. A shallow dish with a carinated profile, splayed out featureless rim and an uniformly buff body. It is treated on both the surfaces with a dark tan slip. From an early level of Period I C.

13. A shallow dish with a rounded profile, a short collared rim and an even buff body. It is treated on the two surfaces with a reddish brown slip. From a late level of Period I C.

(ii) Greenish-buff Ware

Fig. 51 (lower half)

14. A body fragment of bulbous jar with a buff body. It is treated on the outside with a greenish buff slip, over which mesh filled pendant triangles attached to hatched ovals, radiating lines and hooks and suspended chain motifs are painted in brown-black. From an early level of Period I C.

15. A body sherd of a bulbous jar with a buffish red body. It is treated on the outside with a whitish cream slip, over which broad-bands enclosing mesh filled arches with widening middle and solid dots are painted in brown. From an early level of Period I C.

16. A body sherd of a bulbous jar with a greenish buff body. It is treated with a creamy slip, over which are painted black-brown horizontal bands below a standing chain pattern with vertical strokes in the middle and a hatched lenticulate with an upturned tail. From an early level of Period I C.[1]

17. A shoulder fragment of a bulbous jar with a greenish buff body, over which are painted horizontal bands above a 'chain' motif band having a filling of horizontal strokes in brown-black. From an early level of Period I C.[2]

18. A greenish-buff sherd painted on the outside with groups of vertical lines within uneven horizontal bands in dark brown. From a late level of the Period I C.[3]

19. A greenish-buff sherd with alternate triangles filled with horizontal strokes in dark brown. From a late level of Period I C.

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[1] Fairservis 1959, fig 395 114-15 Jangal painted; Stein 1929, Pl XIII.R 634

[2] *ibid.*, 1936, Pl XXV 41

[3] *ibid.*, Pl XII 5,6

20. A greenish buff sherd with horizontal bands filled in with curved vertical strokes in light brown. From a late level of Period I C.[1]

21. A greenish buff sherd with horizontal bands supporting rayed arches painted in dark brown. From a late level of Period I C.

22. A greenish buff shoulder fragment of a bulbous jar, treated on the outside with a similar coloured slip. It is painted over with horizontal, linear and 'chain' bands, in dark brown black. From a late level of Period I C.[2]

23. A greenish buff shoulder fragment of a bulbous jar painted over an unslipped surface with horizontal bands of broad lines and 'chain' motifs, filled with curved strokes. From a late level of Period I C.[3]

24. A greenish buff shoulder fragment of a bulbous jar painted over a slipped surface with horizontal bands above a row of horizontally hatched and deployed lenticulates having encircled dots in between in dark black brown. From a late level of Period I C.

25. A greenish buff sherd painted over a slipped surface with a horizontal panel filled with vertically deployed and hatched lenticulates alternating with wavy lines in dark black brown. From an early level of Period I C.

26. A greenish buff body sherd of a bulbous jar with oblique mesh filled lenticulates painted in black brown. From a late level of Period I C.

27. A greenish buff sherd with a panel comprising of spaced arches, filled with vertical wavy strokes within multiple horizontal bands painted in black brown over a greenish buff slipped surface. From an early level of Period I C.

28. A greenish buff fragment of a small jar with a bulbous body; it is painted over the slipped surface with multiple horizontal bands enclosing horizontally hatched columns in brown black. From an early level of Period I C.[4]

29. A greenish buff sherd with an even buff section; it is painted over a smoothened surface with dark brown horizontal bands above mesh bands. From a late level of Period I C.

30. A greenish buff sherd with an even buff section; it is painted over a smoothened surface with dark brown horizontal bands above mesh bands. From a late level of Period I C.

31. A greenish - buff sherd of a bulbous jar decorated over a smoothened surface

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1. Stein: 1929, Pl XII. 5,6
2. Mackay: 1947, Pl. LXX 2,13; Marshall: 1931, Pl. LXXXIX. 11; Majumdar: 1934, Pl. XXII. 16 Chandhudaro, Fairservis: 1959, fig. 395. 114 116 Jangal painted.
3. Mackay. 1943, Pl. XLV.6 Trihni; Majumdar: 1934, Pls. XXIII.37.45 ShahHasan; XXII.22 Chanhudaro
4. Casal 1964, fig 61.190 (I C).

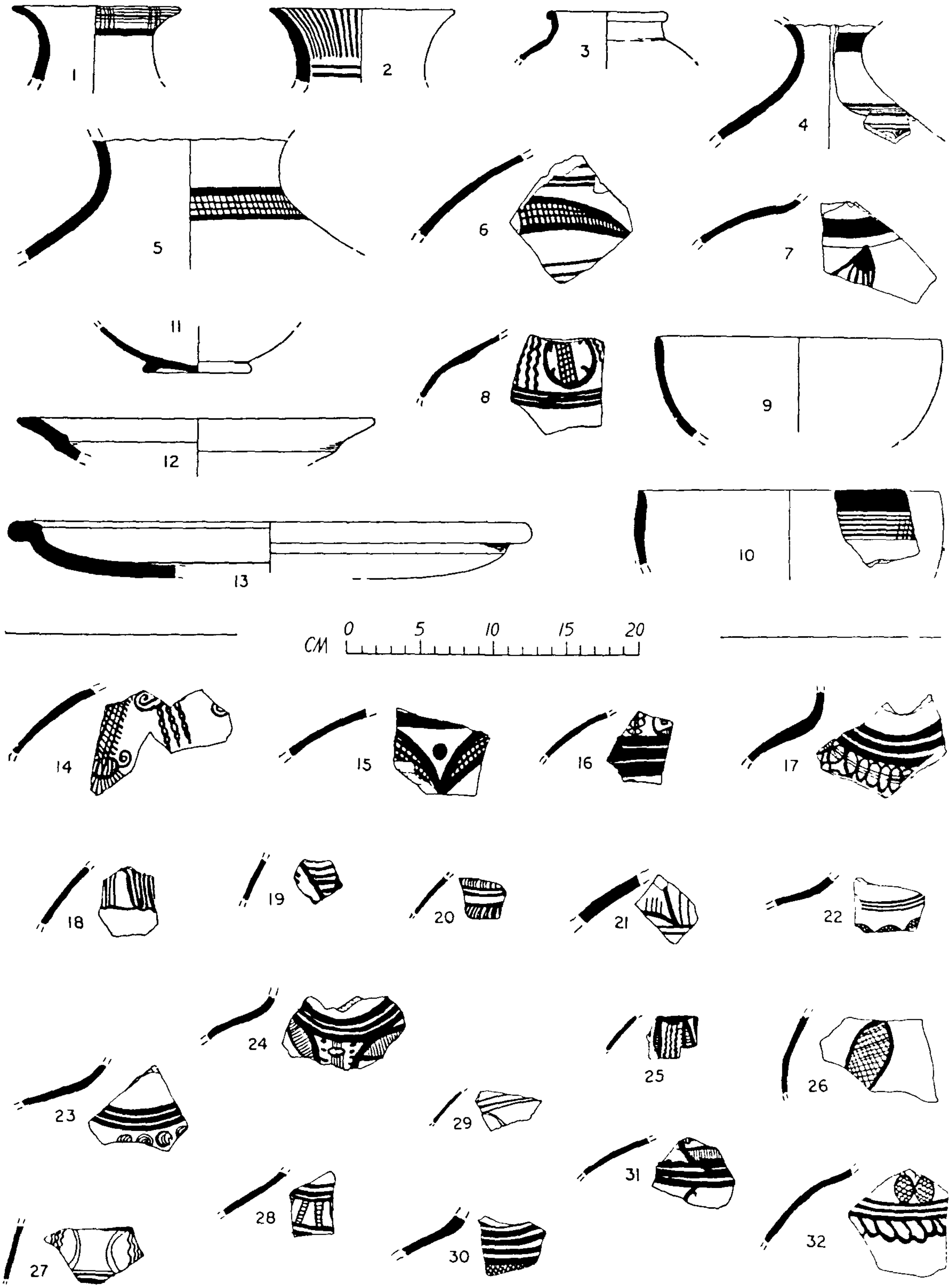


Fig. 51. Pottery.

with horizontal bands having a hatched lenticulate with an upcurved tail above and possibly below in dark brown black. From a late level of Period I C.[1]

32. A greenish-buff sherd from the shoulder portion of a bulbous jar, with a smoothened surface decorated with triple horizontal bands and a couple of crosshatched ovals with loops suspended below in black brown. From a late level of Period I C.[2]

(iii) Cream Slipped Red ware.

Fig. 52

1. A low necked storage jar with a clubbed rim and bulbous, semioxidized body, treated on the outside with a pinkish-cream slip; it is decorated with a black band on the rim's edge and a row of multiple pronged hooks above a line; below are groups of black vertical strokes and a multiple pronged double hooks in black. From an early level of Period I C.[3]

2. A concave necked jar with a featureless rim and a bulbous, semioxidized body, treated on the inside with a red wash and on the outside with a pinkish cream slip; over it are painted mat patterned bands in black brown. From an early level of Period I C.

3. A fragment from the shoulder region of a small bulbous jar with an overburnt black core, originally treated with a cream slip outside; over it thin and thick horizontal bands crossed over by groups of short, vertical strokes with suspended alternate groups of straight vertical and wavy lines in black are painted. From a late level of Period I C.

4. A low concave necked, small bulbous jar with a semioxidized body, treated with a cream slip on the out side; over it horizontal bands are painted in reddish brown to which loops are attached below. From a late level of Period I C.

5. A shoulder fragment of a large bulbous jar having a semioxidized body with a buffish section in the inner half of the core. On the outside, over a pinkish-cream slip, horizontal bands enclosing within multiple pronged double hooks are painted in black. From an early level of Period I C.

6. A body fragment of a semioxidized bulbous jar treated on the outside with a buffish cream slip, over which horizontal bands below oblique mesh filled squares are painted in black brown From a late level of the Period I C.

7 A fully oxidized sherd, treated on the outside with a greenish buff slip, over which a mesh band is painted in reddish brown. From a late level of Period I C.[4]

8. A semioxidized body sherd from a bulbous jar, treated on the outside with a dusty cream slip, over which are painted, in red, hollow lenticulates horizontally deployed having

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Majumdar 1934 Pl XXII 22 Chanhudaro

Mackay 1943 Pl XLV 28 30,31 and 37 Jhukar

R 1955-56

i servis 1959 Pl 334 39 g Jangal coarse

multiple concentric circles within and the intervening spaces are filled with vertical wavy lines. From a late level of Period I C.[1]

9. An oxidized sherd, treated with a cream slip on the outside, over which concave double lined borders and thin lined mat patterns are painted in dark brown. From an early level of Period I C.

10. A semioxidized-sherd, treated on the outside with a thick cream slip; over it is placed a double ladder pattern in black. From an early level of Period I C.

11. A fully oxidized sherd, treated with a thick cream slip; over it are painted multiple thin and thick bands above a double lined mesh band in dark and light brown black. From an early level of Period I C.

12. A fully oxidized shoulder fragment of a bulbous jar, treated with a dusty white slip, painted over multiple horizontal bands in light reddish brown, and solid circles in black. From a late level of Period I C.

13. A fully oxidized body fragment of a bulbous jar, treated on the outside with a whitish buff slip, bearing a painted pattern, comprising horizontal bands above rayed arches enclosing vertical, wavy and straight lines, alternating with simple double lined arches with similar enclosures in dark drown. From an early level of Period I C.

14. A fully oxidized sherd treated on the outside with a cream slip, over which multiple horizontal bands having above and below, a couple of hatched loops with rays emanating from outer ones are painted. From an early level of Period I C.

15. A fully oxidized sherd of a bulbous jar, treated on the outside with a pinkish cream slip, over which are horizontal bands, from which are suspended wavy lines in reddish brown. From a late level of Period I C.

16. A fully oxidized sherd. It is treated on the outside with a pinkish cream slip over which multiple ovals within one another are painted in dark red ocherous shade. From a late level of Period I C.

17. A semioxidized shoulder fragment of a bulbous jar. It is treated with a cream slip, over which circular outlines in violet-red filled with smaller, multiple hatched circles are painted. From a late level of Period I C.

18. A fully oxidized shoulder fragment of a bulbous jar. It is treated on the outside with a pinkish-cream slip, over which multiple horizontal bands below a row of vertically placed solid lenticulates are painted in black. From a late level of Period I C.[2]

19. A fully oxidized body fragment of a bulbous vessel. It is treated on the outside with a cream slip bearing multiple horizontal bands above irregularly formed multiple concentric circles in violet-red. From a late level of Period I C.

20. A semioxdized shoulder fragment of a bulbous vessel. It is treated on the outside

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[1] Majumdar 1934 Pl. XV.23 Jhukar

[2] De Cardi 1965, fig 16 12 (Siah II iii)

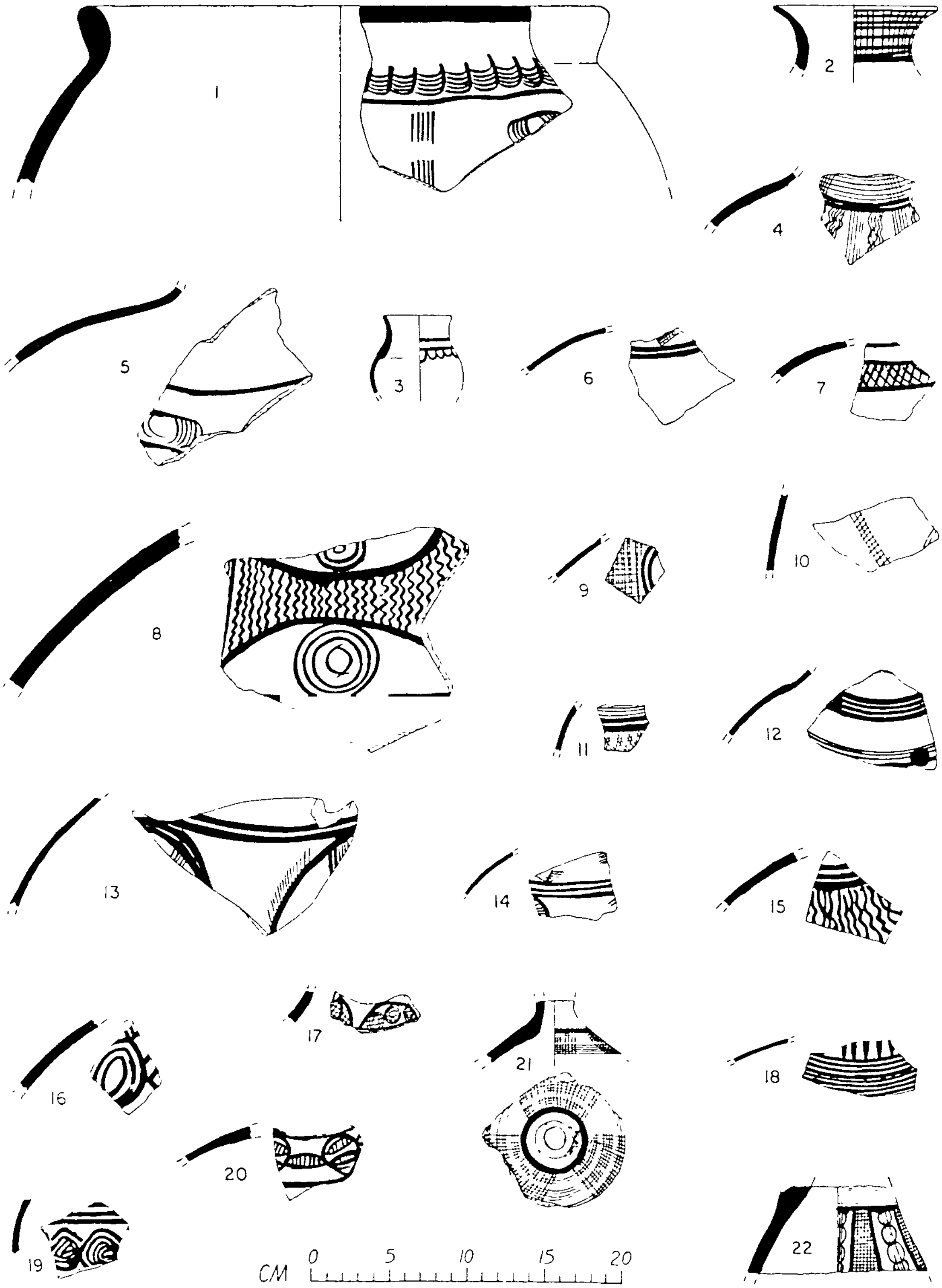


Fig 52 Pottery

with a thick cream slip, over which a single lined black border within circles joined by hatched horizontally placed lenticulates and filled with similar objects are painted. From a late level of Period I C.

21. A semioxidized bulbous vessel with a bottleneck. It is treated on the outside of a grey green body with a pinkish buff slip, painted over in black with multiple horizontal bands crossed with spaced groups of vertical lines. From an early level of Period I C.

22. A fully oxidized tapering sided squattish stand of a bowl. It is treated on the outside with a cream slip, over which standing columns of chain motifs filled with vertical lines, alternating with dashes are painted in black. From a late level of Period I C.

(iv) Polychrome Red slipped ware.

Fig 53 (upper half)

1. A fully oxidized fragment of a bulbous jar with an outcurved rim. Over the cream slipped surface black horizontal bands and pendant double lined triangles filled with mat-patterns are painted. From a late level of Period I C.

2. A semioxidized shoulder fragment of a large jar, treated on the outside with a red slip over which horizontal white lines and black bands are painted. Multiple white dots are placed over the latter. Below are multiple curved strokes in white. From late level of Period I C.

3. A concave necked jar with a bulbous, fully oxidized body. It is treated on the outside with a red ship, over which a broad double bordered row of eye motif is painted in white. From an early level of Period I C.

4. A semioxidized shoulder fragment of a bulbous jar. It is treated on the outside with a red slip, over which multiple black and white horizontal bands, crossed over with short vertical strokes are painted in black. From an early level of Period I C.

5. One of two fully oxidized rare sherds. It is treated with a glazed deep red slip over which a couple of broad bands are painted with alternate black and white unglazed colours. From an early level of Period I C.

6. A fully oxidized sherd. Its natural red surface is white washed over which multiple black horizontal bands above a column of vertical lines filled with slanting strokes are painted. From an early level of Period I C.

7. A fully oxidized sherd from the shoulder region of a bulbous jar. It is treated on the outside with a deep red slip, over which multiple horizontal bands enclosing, on a light cream-slipped surface, a horizontal row of conjoined circles crossed over by a horizontal band in black are painted. From a late level of Period I C.

8. A semioxidized sherd treated with a red slip, over which a black horizontal band

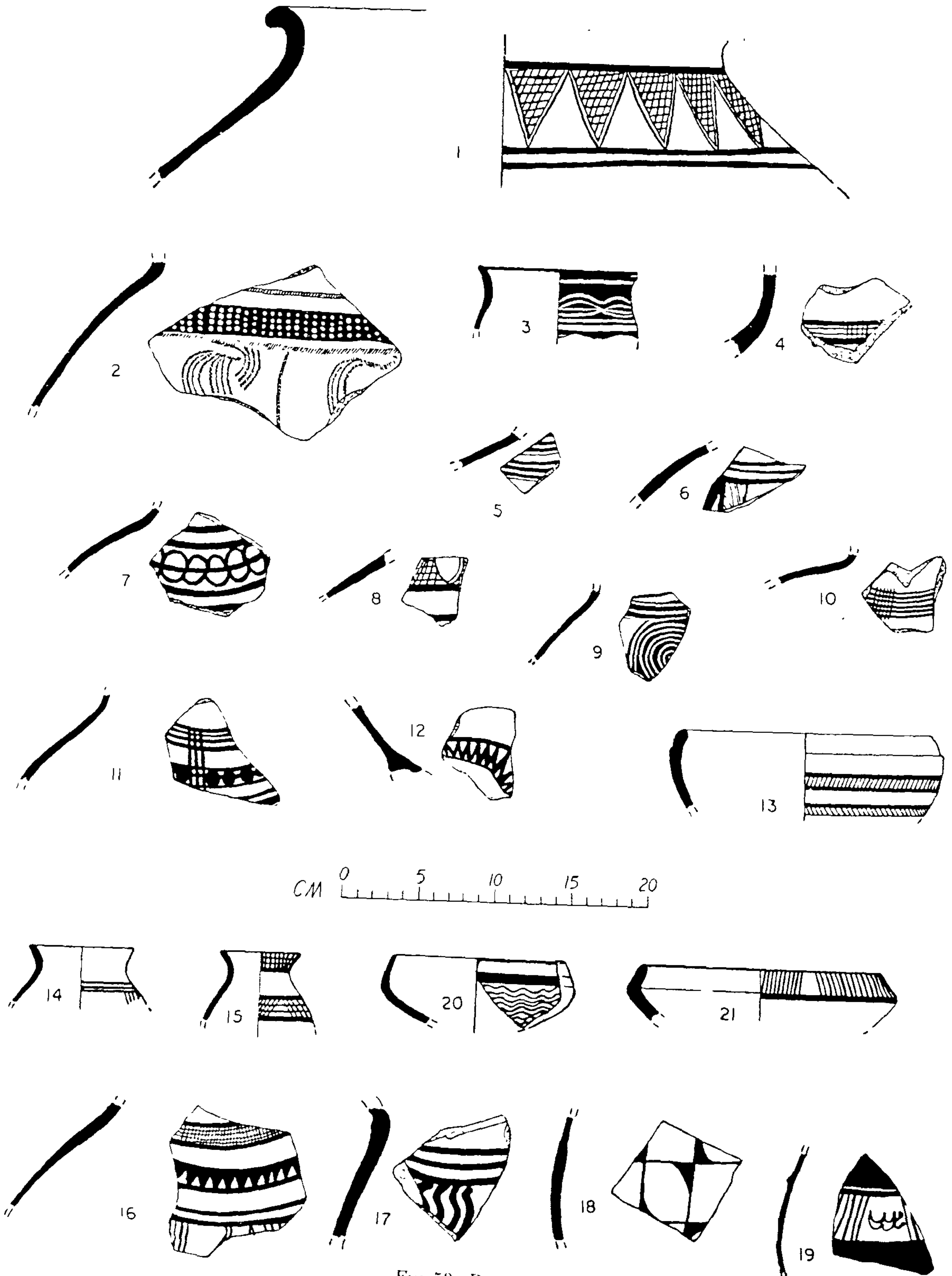


Fig 53 Pottery

and a hollow standing oval with mat filled spaces on either side against a cream slipped background are painted. From a late level of Period I C.

9. The other of the two rare fully oxidized sherds from the shoulder region of a bulbous vessel. It is treated on the outside with a glazed red slip, over which alternative horizontal bands are painted in black and red above multiple concentric circles in white over a black circular outline. From a late level of Period I C.

10. A fully oxidized shoulder fragment of a bulbous jar. It is treated with a deep red slip, over which multiple horizontal lines in light brown over a cream band, crossed over by a group of vertical strokes, are painted. From a late level of Period I C.

11. A fully oxidized shoulder piece of a bulbous jar. It is treated with a red slip, over which multiple-lined black horizontal bands with superimposed solid dots on the lower and vertical lines across both are painted over a creamy background. From a late level of Period I C.

12. A tapering lower side of a bowl-on-stand. Its semioxidized body is treated with a red slip on both the surfaces and decorated over the base with a zigzag band within a horizontal lined border against a white background. From a late level of Period I C.[1]

13. A deep bowl with a rounded profile, a grooved shoulder and a slightly incurved bulbous rim. Over the brown washed surface on the outside alternate horizontal bands filled alternately with slanting lines in deep brown and white are painted. From an early level of Period I C.

(v) Black painted over Red slipped ware.

Fig. 53 (lower half)

14. A fully oxidized jar with a featureless rim, concave neck and a globular body. Over the outer red slipped surface horizontal bands are painted in black on the rim and shoulders, below which vertical lines in groups are suspended. From an early level of Period I C.

15. A fully oxidized jar with a featureless rim, concave neck and globular body. It is treated with a brown wash on the inside rim, and outside surface, over which mesh bands and multiple lined horizontal bands, crossed over by groups of vertical lines slanting in opposite directions on the rim, are painted in black. From an early level of Period I C.

16. A fully oxidized shoulder fragment of a bulbous jar treated with a red wash. Over this horizontal mesh bands, a band with pendant solid triangles and spaced groups of wavy vertical lines below a double lined horizontal band are painted in black. From an early level of Period I C.

17. A shoulder fragment of a sturdy well oxidized bulbous jar. It is treated on the

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[1] Fairservis 1959, fig 334:39d Jangal coarse

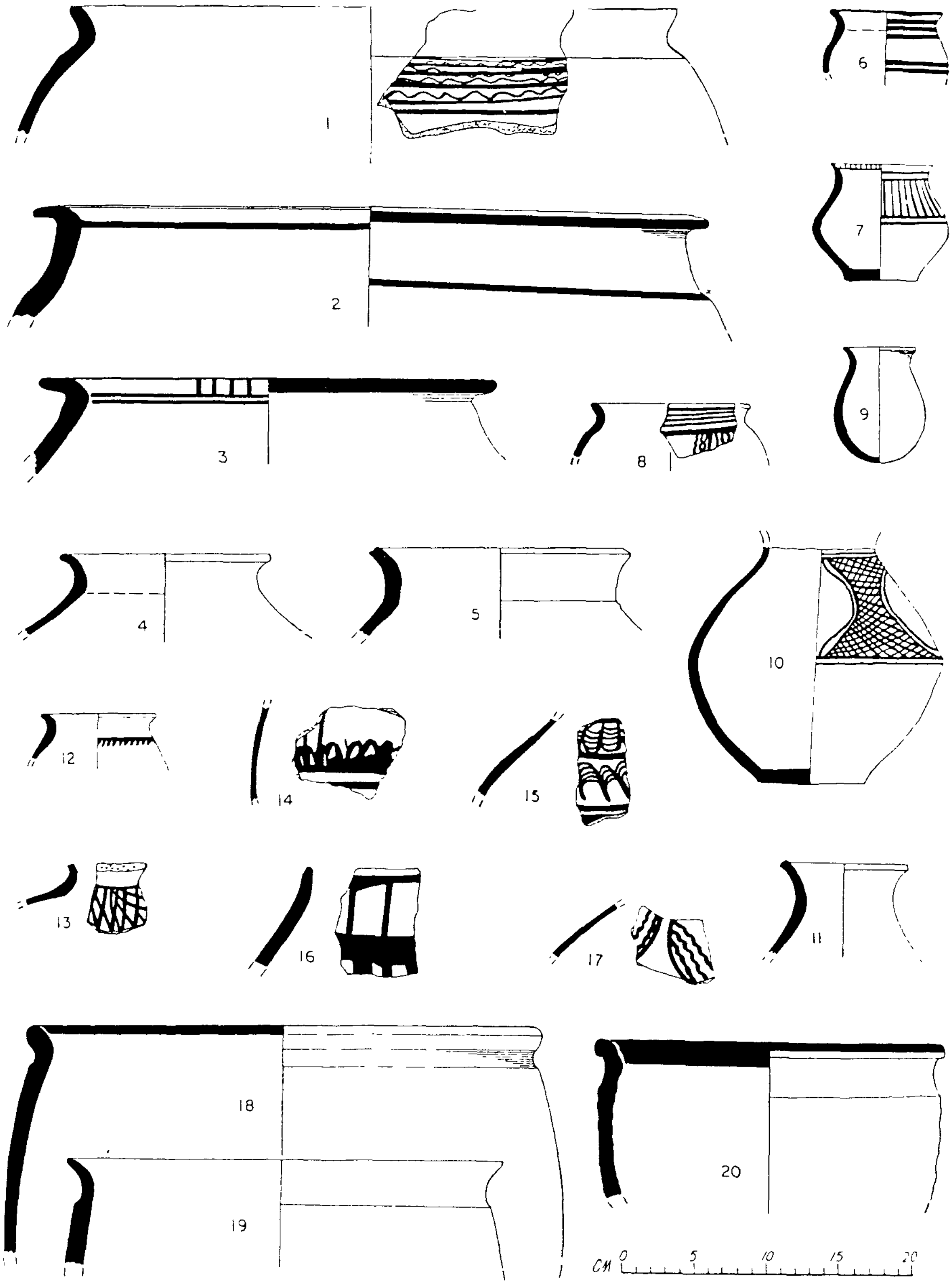


Fig 54 Pottery

outside with a red slip burnt blotchy and on it multiple horizontal bands with hanging groups of wavy lines are painted in reddish-brown. From a late level of Period I C.[1]

18. A fully oxidized body fragment of a bulbous jar, treated on the outside with a red slip. Over that crosslines forming squares, with corners having solid triangles are painted in black. From an early level of Period I C.

19. A fully oxidized fragment of a bulbous jar with a slight ridge of the shoulder and red washed surface. It is decorated with thick black brown bands on the shoulder and the intervening space on the body is filled-in with groups of vertical lines and multiple upturned loops. From an early level of Period I C.[2]

20. A shallow dish with a bluntly carinated profile and fully oxidized body. It is treated on both the sides with a deep black brown horizontal band on the rim and the carination below the body is painted over with multiple wavy lines. From an early level of Period I C.

21. A shallow dish with a sharply carinated profile, rounded bottom and fully oxidized body. It is treated over the two surfaces with a shining black brown slip, over which white bands on the rim and multiple vertical strokes on the carination are painted in dark-brown. From an early level of Period I C.

(vi) Coarse Red ware.

Fig. 54

1. A sturdy storage jar with a short outturned rim, an incipient ridge on the shoulder and a bulbous fully oxidized body. It is treated on both the surfaces with a red slip, over which on the outside a broad horizontal band comprising alternately straight and wavy lines is painted in black. From an early level of Period I C.[3]

2. A low necked sturdy storage jar with a short projected rim, an incipiently ribbed shoulder and a bulbous, fully oxidized body. It is treated with a red slip on the outside and decorated on the edges of the rim and the shoulder with black bands. From an early level of Period I C.

3. A low necked, sturdy storage jar with a short projected rim and fully oxidized bulbous body. It is treated with a red slip on the inside and outside of the rim. Over it black bands on the edges of the rim and groups of short vertical lines on the top are painted. From an early level of Period I C.

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[1] Fairservis, 1959, fig. 402 187 Kechi Beg Polychrome

[2] *ibid.*, 1956, fig. 306, 497-8 Quetta ware; *ibid.*, 1959, figs 331 374 a, 338.431 Periano painted; 339.44 p Jangal painted; 402.188 Kechi Beg Polychrome, *ibid.*, 1961, figs 104.10, 110 78 Gardan Reg, Stein 1929, Pls XI M M.N 10, E 6, 31; XX S J.I.I

[3] Mackay 1943, Pl XLVI 44 Jhukar; Majumdar 1934, Pl XXXI 24 Jhangar, Fairservis 1959, fig 317 25 p Ghul ware, Sankalia *et al* 1969, fig 26 64 (R)

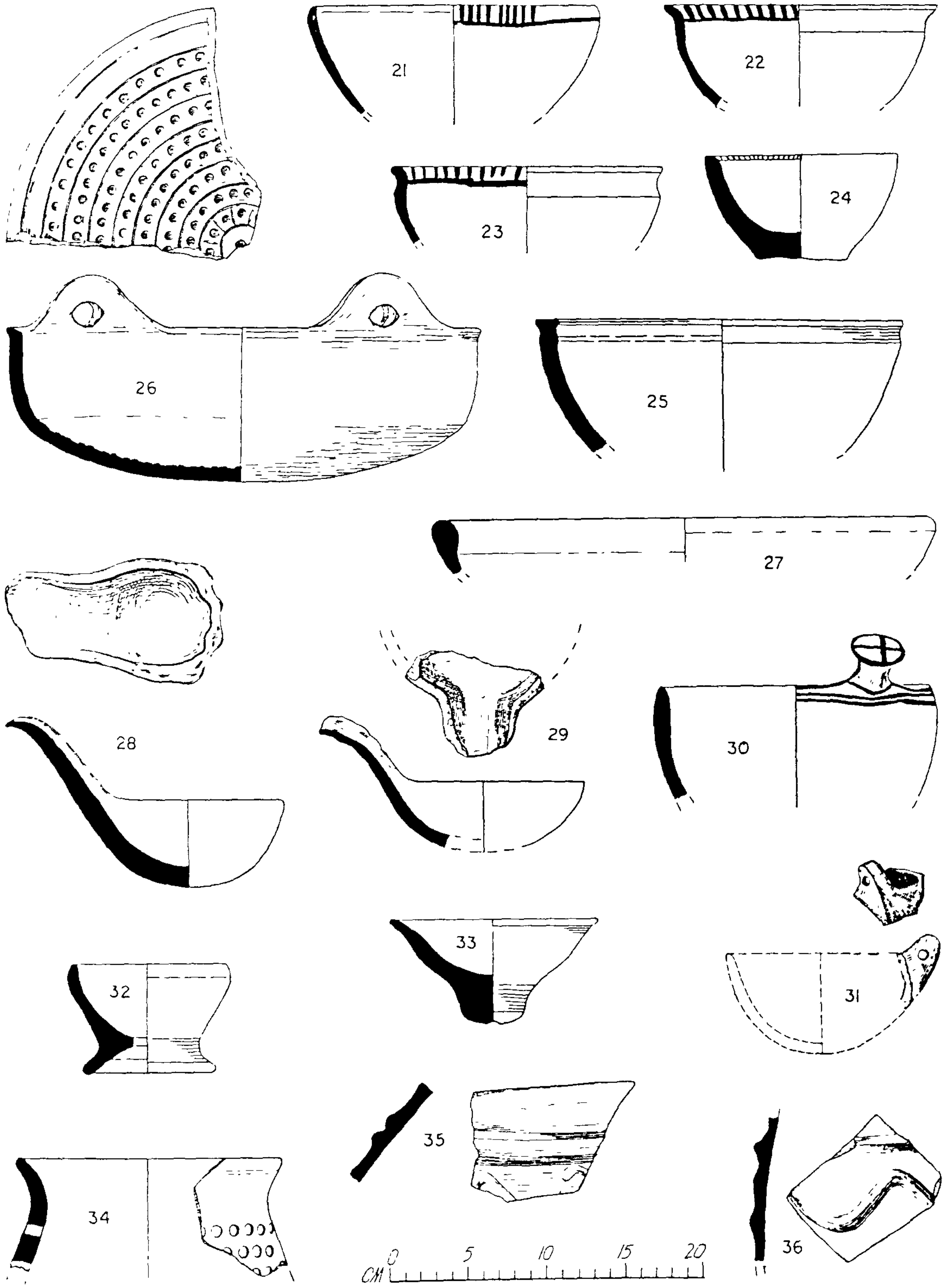


Fig 55. Pottery

4. A short concave necked bulbous jar with a semi-oxidized body. It is treated on the outside with a red slip. From an early level of Period I C.[1]

5. A concave necked jar with a bulbous semioxidized body and grooved rim. It is treated on the outside with a red slip. From an early level of Period I C.[2]

6. A low concave necked small vessel with a featureless rim and fully oxidized bulbous body. It is treated on the outside with a red slip, over which multiple horizontal bands are painted in black. From a late level of Period I C.

7. An almost neckless, small vessel with a short everted rim, bluntly carinated body and a small flat base. It is treated on the outside with a red slip, over which on the outside, horizontal bands on the rim and carination and multiple vertical strokes in-between are painted in black. From an early level of Period I C.

8. A low necked bulbous jar with a short outturned rim and a fully oxidized body. It is treated with red slip on the outside, over which multiple horizontal bands having suspended wavy and straight lines are painted in black. From a late level of Period I C.[3]

9. A concave necked small jar with an ovaloid and fully oxidized body. Surfaces are much encrusted. From an early level of Period I C.[4]

10. A big jar with a bluntly carinated body and a flat base. It is treated on the outside with a bright slip, over which double lined ovals with the side spaces being filled with mesh patterns are painted. From an early level of Period I C.

11. A concave necked jar with a bulbous semioxidized body, treated on the outside with a red wash. From an early level of Period I C.[5]

12. A short concave necked miniature jar with a bulbous semioxidized body, treated with a red slip over which is a black painted horizontal band with a toothed lower edge. From a late level of Period I C.

13. A low necked jar with a fully oxidized bulbous body. It is treated on the outside with red slip, over which is a mesh-band painted in bold black lines on the shoulder. From the early level of Period I C.

14. A fully oxidized sherd with a red slip, over which is painted a double lined horizontal band topped by multiple loops and a lone vertical line in black. From an early level of Period I C.[6]

15. A fully oxidized shoulder fragment. It is treated with a red slip over which, within horizontal bands, multiple loops curving in reverse directions are painted in black. From a late level of Period I C.

16. A neckless sturdy bulbous jar with sloping shoulders and a featureless rim. Its

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1 Sankalia *et al* 1969, fig 33 83 (R).
2 *ibid*., fig. 31 78 d (R)
3 Fairservis 1961, fig 104 6, 10 Gardan Reg
4 Sankalia *et al* 1969, figs 57 161 (Gr.)
5 *ibid* figs 23 54 (R), 32 80
6 Rao 1962 fig 32 B1

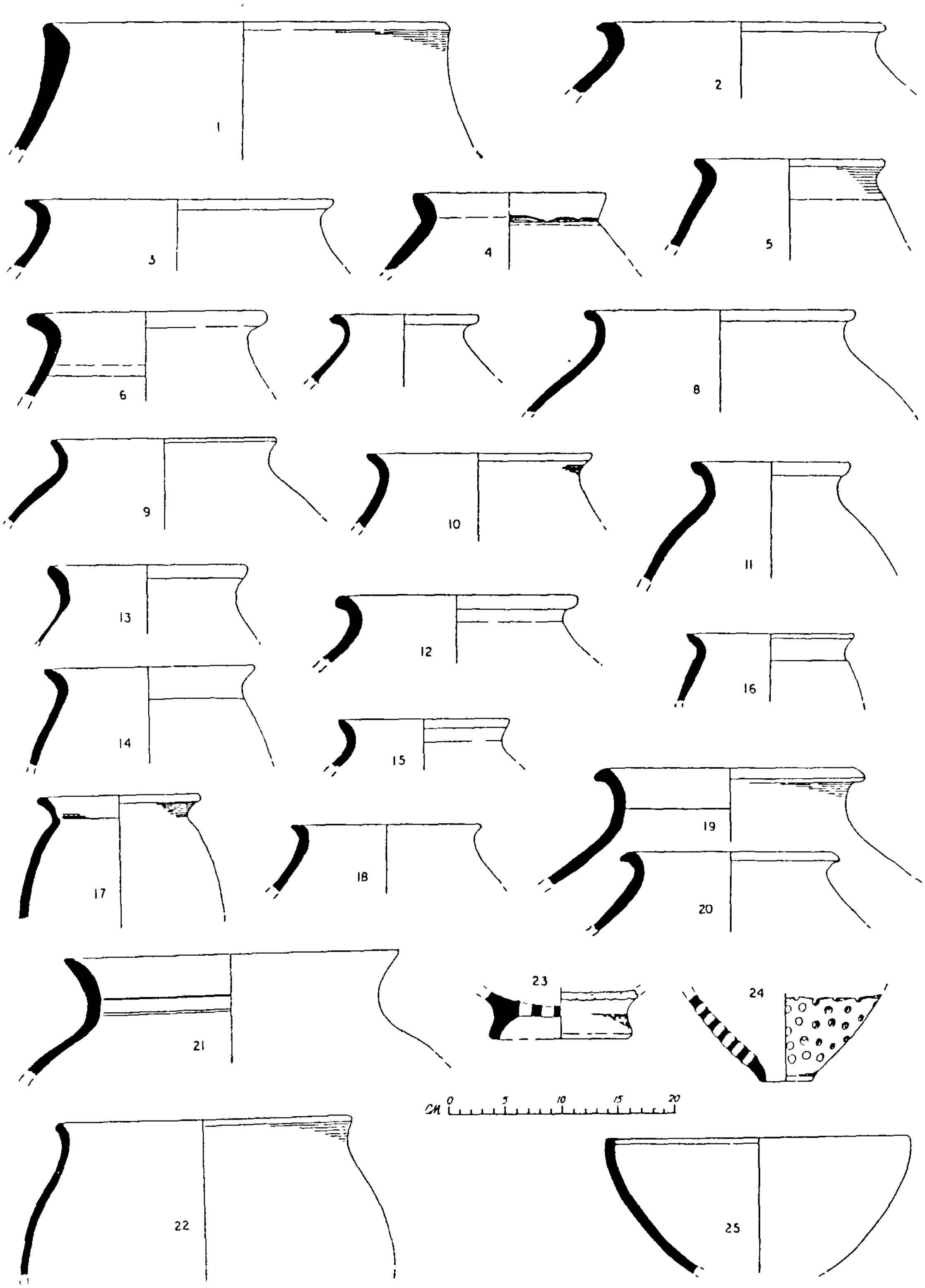


Fig 56 Pottery.

fully oxidized body is treated with a red slip, over which are thick horizontal bands crossed over by thin vertical lines painted in black. From a late level of Period I C.[1]

17. A semioxidized sherd, treated with a dusty cream slip, over which multiple wavy lines within circles are painted in black-brown pigment. From a late level of Period I C.

18. A convex sided basin or jar with a short out turned rim and a shallow grooved neck and fully oxidized body. It is treated on the outside with a red slip over which the rim-top is decorated with a black band. From an early level of Period I C.

19. A semioxidized jar with a tapering side and a short outcurved rim. It is treated on both the surfaces with a dark brown slip. From an early level of Period I C.

20. A deep basin with a short outturned rim and rounded profile with an irregular outer surface. It is treated on both the surfaces with a red slip over which the rim is painted with a black band on the inside. From an early level of Period I C.[2]

Fig. 55

21. A tapering sided deep bowl with a short incurved featureless neck. It is treated on both sides with a deep red slip, over which on the outside a black band having multiple short vertical strokes above is painted. From an early level of Period I C.[3]

22. A round deep bowl with an outcurved featureless rim, a shallow ridge on the shoulder and fully oxidized body. It is treated with a red slip on both the sides and painted on the inside of the rim with double horizontal bands filled with multiple, short vertical strokes in black. From a late level of Period I C.[4]

23. A similar bowl. It is treated on the two surfaces with a red wash and decorated with the same pattern painted in black. From an early level of Period I C.[5]

24. A tapering sided deep open bowl with a flat bottom and a rim with a grooved top. Its fully oxidized body is treated with a red slip on the two surfaces over which a decoration of multiple short strokes on the flat rim is painted in black. From a late level of Period I C.

25. A deep basin with rounded sides, flat rim with a shallow groove below and fully oxidized body. It is treated with a red slip, From an early level of Period I C.[6]

26. A trough like pan with a round bottom, with pitted circles arranged within incised concentric lines on the inside, a slightly outgoing side with a short everted rim, attached with two perforated lug-handles. Its fully oxidized surfaces are treated with a red wash. From a late level of Period I C.[7]

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[1] Sankalia *et al* 1969, fig 33.84 (R)

[2] *I.A.R* 1957-58, fig 6 Bhagatrav, Rao. 1962, fig 43.90.

[3] Sankalia *et al* 1969, figs. 53.139 (Gr); 57.163 (R)

[4] *ibid.*, fig. 58.168 a (R)

[5] *ibid.*, fig. 53.140 b (Gr).

[6] *ibid.*, figs. 34.89 a (R); 53.138 (Gr)

[7] *ibid.*, fig 54.146 a (Gr).

27. A rounded bottomed dish with an internally clubbed rim. Its fully oxidized body is treated on the two surfaces with a red slip. From a late level of Period I C.[1]

28. A long channel-handled bowl with a semioxidized body. It is treated with a red slip burnt black on the inside and blotchy on the outside. From an early level of Period I C.

29. A short-channel handled bowl with a featureless rim and semioxidized body. It is treated on both the surfaces with a red slip. From a late level of Period I C.

30. A short stud-handled deep bowl with a rounded profile and fully oxidized body. It is treated on the two surfaces with a red slip, over which the rim on the outside is decorated with a double lined band in black and the base of the stud is surrounded with a black band hanging in a knot on the inside; on the flat top of the stud is also a cross in black paint. From an early level of Period I C.[2]

31. A small bowl probably with a rounded profile having a perforated lug handle attached to its side. It is fully oxidized and treated with red slip on both the surfaces. From an early level of Period I C.[3]

32. A tapering sided bowl having a slightly incurved featureless rim, a sloping broad and high stand with a fully oxidized body. It is treated on the two surfaces with red slip. From a late level of Period I C.[4]

33. A tapering sided bowl having a splayed out featureless rim, a solid cylindrical stand and a semioxidized body. It is treated on both the surfaces with red slip. From a late level of Period I C.[5]

34. A short concave necked vessel with a fully oxidized bulbous body, having perforations all over the body below the neck. On the two surfaces red slip appears to have been applied originally. From an early level of Period IC.

35. A semioxidized sherd, decorated on the outside with horizontal ribbed wavy bands. The two outer surfaces are treated with red slip. From an early level of Period I C.

36. An oxidized sherd having horizontal and wavy ribbed bands on the outer surface, which is treated with deep red slip. From a late level of Period I C.

(vii) Very Coarse Red ware.

Fig. 56

1. A bulbous storage jar with an imperceptibly concave neck, an internally thickened

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[1] Rao: 1962, figs 24 112, 42.82.

[2] *I A R.* 1958-59, fig. 9B.9 10c.6 Rojdi; Rao: 1962, fig. 23.92.

[3] Mackay: 1937, Pls LII 14; LVII 14-15; LXII.18, Marshall: 1931, Pls. LXXVIII 9; LXXXIII 13-27, Stein 1931, Pl VII.Su 1.2

[4] Sankalia *et al* 1969, figs 54 141 (Gr); 17 42 b (Gr.)

[5] *ibid*., fig 17 41 (Gr)

featureless rim and semioxidized body. It is treated on the outside with thick red slip. From an early level of Period I C.[1]

2. A low necked bulbous storage jar with a short beaked rim and a fully oxidized body. It is treated on the two surfaces with thick deep red slip. From a late level of Period I C.

3. A low concave necked bulbous storage jar with a short featureless rim and oxidized body. It is treated on the outside with deep red slip. From an early level of Period I C.[2]

4. A bulbous storage jar with a short outturned rim and a fully oxidized body. It is treated on the outside with red slip. From an early level of Period I C.[3]

5. A small bulbous jar with a short outturned rim and a semioxidized body with a coarsened outer surface; on the outside below the shoulder it is treated with thin slip. On the coarsened exterior there are sootmarks. From a late level of Period I C.

6. A low concave necked sturdy bulbous jar with a short beaked rim and semioxidized body. It is treated on the outside with a red slip. From a late level of Period I C.[4]

7. A concave necked bulbous jar with a short beaked rim and semioxidized body. It is treated with red slip on both the surfaces. From the lower levels of Period I C.

8. A concave necked bulbous jar with a featureless rim and fully oxidised body. It is treated with red slip on both the surfaces. From the lower levels of Period I C.

9. A low concave necked bulbous jar with a featureless rim,coarsened outer surface and semioxidized body. It is treated with reddish slip. Soot marks are seen on the lower body. From an early levels of Period I C.[5]

10. A concave necked bulbous body having a featureless rim and fully oxidised body. It is treated on the two surfaces with red slip. From an early level of Period I C.[6]

11. A concave necked sturdy jar with a bulbous profile, featureless rim and neck, smoothened on the interior and exterior and an oxidized body which is trimmed and thereby coarsened with a sharp instrument over which is applied pinkish yellow slip on both the surfaces. The roughened body bears soot marks. From an early level of Period I C.[7]

12. A concave necked sturdy bulbous jar with a beaded rim and a fully oxidized body. It is treated on the two surfaces with thin red slip. From a late level of Period I C.[8]

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[1] Sankalia *et al* 1969, fig 10 20 (Gr), 26.65 (R)

[2] *ibid*, fig 20 50 (R)

[3] *ibid*, fig 10 20 a (Gr)

[4] *ibid*, fig 10 20 d (Gr)

[5] *ibid*, fig. 33.83 (R)

[6] *ibid*, fig 63.18 a (R)

[7] *ibid*., fig. 28.72.

[8] *ibid*, fig. 32.81 (R).

13. A bulbous jar with a short outturned rim and irregular surfaces. Its oxidized body is treated on both the surfaces with red slip. The outer body and the rim's edge bear sootmarks. From a late level of Period I C.

14. A low concave necked sturdy jar with a bulbous profile. It is treated with yellowish red slip. From an early level of Period I C.[1]

15. A concave necked vessel with a featureless rim, bulbous profile and oxidized body. It is treated on the two surfaces with a brownish slip bearing soot marks on the rim's outer edge. From an early level of Period I C.

16. A low concave necked jar with an ovaloid profile having an incipient rib on the shoulder and oxidized body. It is treated with red wash on the outside. From a late level of Period I C.

17. An ovaloid jar with an outturned beaked rim, a shallow recess on the inside of the neck and an oxidized body. It is treated with reddish slip on the two surfaces, the outer being trimmed by a sharp instruments. From an early level of period I C.[2]

18. A low necked sturdy jar with a beaked rim, a bulbous profile and an oxidized body. It is treated on the two surfaces with red slip. From a late level of Period I C.[3]

19. A concave necked sturdy storage jar with a beaked rim, bulbous profile and oxidized body. It is treated on the outside with red slip. From a late level of Period I C.[4]

20. A concave necked vessel with a beaked rim, bulbous profile and an oxidized body. It is treated on the outside with red wash. From a late level of Period I C.[5]

21. A concave necked, large sturdy jar with a featureless rim, bulbous profile and an oxidized body. It is treated upto the neck on the inside and fully on the outside with deep red slip. From a late level of Period I C.[6]

22. A low necked sturdy jar with a featureless rim, an ovaloid profile and an oxidized body. It is treated on the surfaces with red slip. From a late level of Period I C.[7]

23. A medium high ring footed and perforated base of a jar with a semioxidized body. It is treated on both the surfaces with red wash. From a late level of Period I C.

24. A perforated jar with tapering sides and narrow base with holes. It has an oxidized body. It is treated with red slip on the outside. From a late level of the Period I C.[8]

25. A deep basin with a featureless slightly incurved rim, rounded profile and an

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[1] Sankalia *et al*: 1969, fig. 32.81 (R)

[2] *ibid*, fig. 27.72 a (R).

[3] *ibid.*, fig 10.20 (Gr.).

[4] *ibid*, fig 77.211 a (R).

[5] *ibid*, figs 28 72 i (R); 10 20. c (Gr); 29 74 b (R).

[6] *ibid*, fig. 33.85 (R)

[7] *ibid.*, fig. 29.72 h (R)

[8] Mackay. 1937, Pl. LXVII. 13 Lower levels

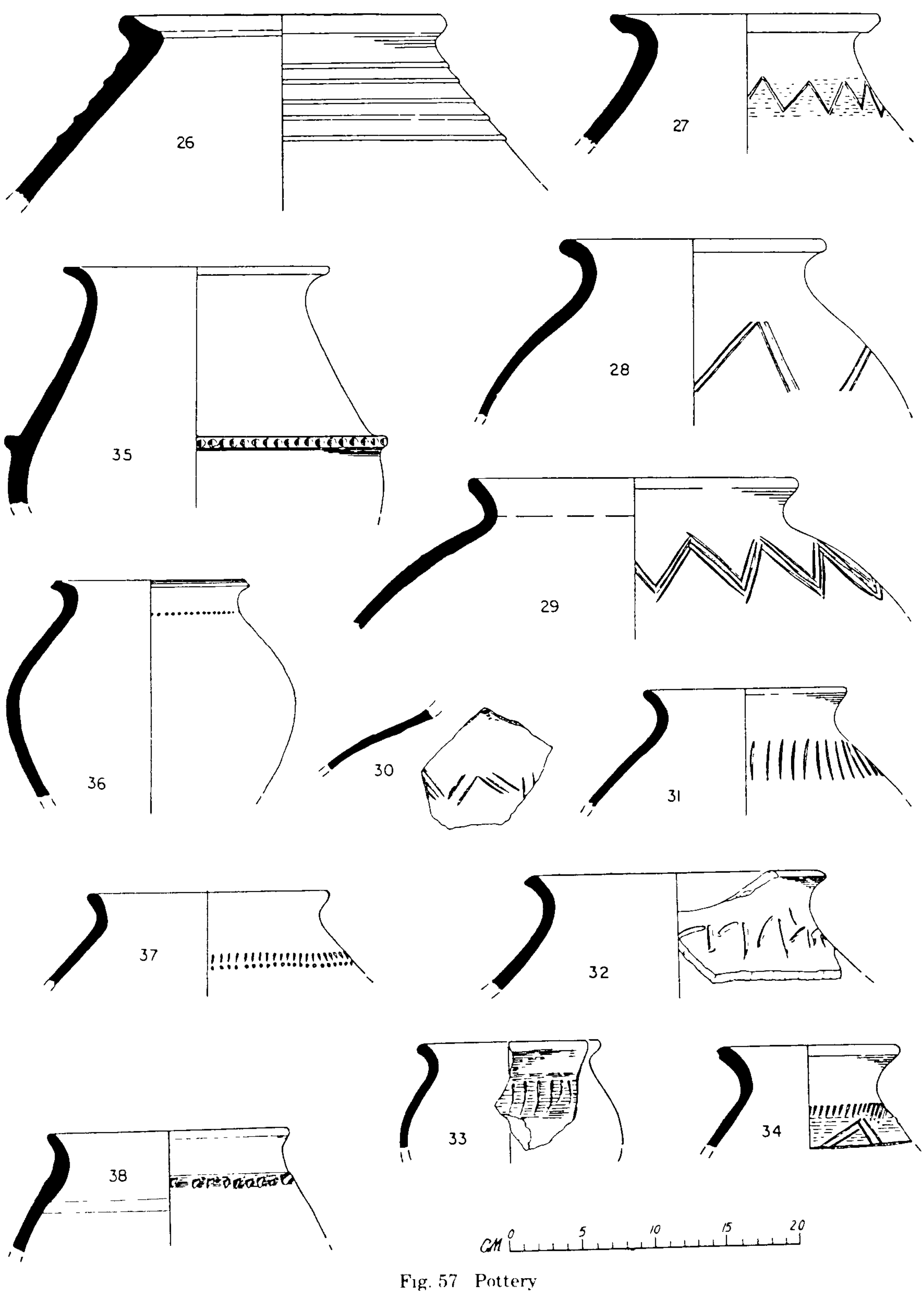


Fig. 57 Pottery

oxidized body. It is treated on the out side with thin red slip. From an early level of Period I C.[1]

Fig. 57

26. A neckless sturdy storage jar with a short outturned rim, an ovaloid profile with a mildly ribbed shoulder, and an oxidized body. It is treated with light brownish slip on both the surfaces. From a late level of Period I C.[2]

27. A neckless sturdy jar with a splayed out rim, a shallow depression on the inner side and an ovaloid profile with sloping shoulders, decorated with a horizontal band of incised zigzag strokes. Its fully oxidized body is treated on both the surfaces with light red thin slip. From an early level of Period I C.

28. A concave necked jar with a featureless rim, bulbous profile and a fully oxidized body with a roughened exterior which is decorated with a horizontal band of incised double zigzag strokes and treated on both the surfaces with light red thin slip. From an early level of Period I C.

29. A low necked storage jar with a short featureless outturned rim, a bulbous profile and a fully oxidized body with a trimmed exterior which is decorated with a band of incised triple lined zigzag strokes on the shoulder and treated on the outside with reddish wash. From a late level of Period I C.[3]

30. A concave necked jar with a high sloping shoulder, a prominent incised ridge below an ovaloid profile and a semi-oxidized body. Its exterior surface below the ridge is roughened. It is treated above the ridge with light red wash. The rounded portion below the ridge bears soot marks. From a late level of Period I C.[4]

31. A concave necked jar with a featureless rim, bulbous profile and a fully oxidized body which is decorated on the shoulder with deep incised vertical strokes. It is treated on both the surfaces with reddish wash. From an early level of Period I C.

32. A concave necked storage jar with a featureless rim, bulbous profile and an oxidized body which is decorated with deep, broad incised zigzag strokes on the shoulder. It is treated on both the surfaces with a light reddish wash. From a late level of the Period I C.

33. A fragment of an overburnt jar with a short outturned rim, bulbous profile and black body which is treated with red wash burnt blotchy on the exterior. On the shoulder there are deeply incised vertical strokes. From a late level of Period I C.[5]

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1. Sankalia *et al.* 1969, figs. 27.70 (R), 11.23 b (Gr.)
2. *ibid.*, figs. 15.33 (Gr.); 16.34 b (Gr.), 29.75 (R), Rao 1962, figs. 25.110 (Gr.), 30.57, *I.A.R.*, 1958-59, fig. 9A.15 Rojdi
3. Sankalia *et al.* 1969, fig. 35.95 (R)
4. *ibid.*
5. *ibid.*, figs. 16.35 (Gr.), 33.87 (R)

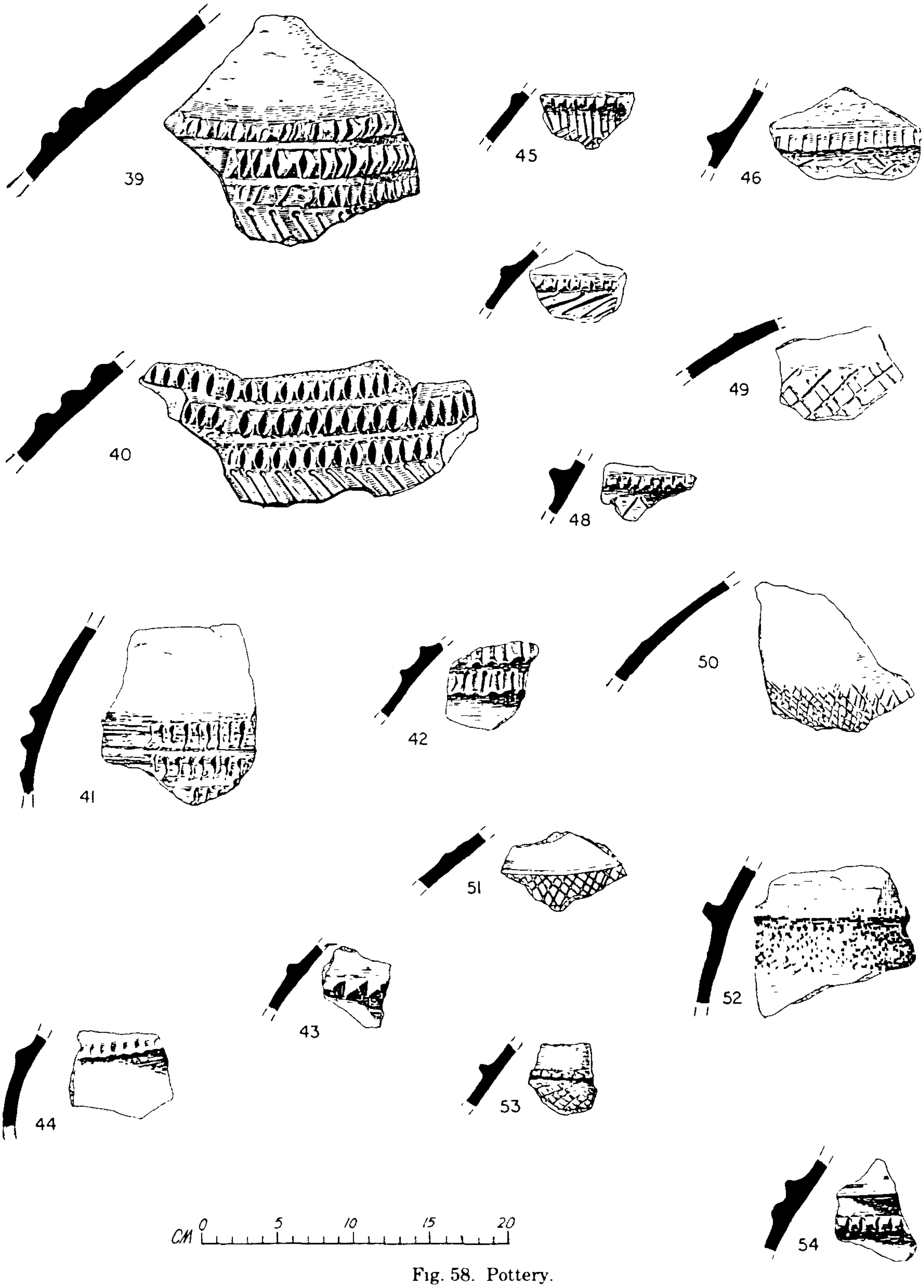


Fig. 58. Pottery.

34. A concave necked jar with a featureless rim, bulbous profile and oxidized body with a roughened outer surface, which is decorated with a band of short, incised strokes on the neck, above a band of incised double zigzag strokes. The example is treated on both the surfaces with light red wash. From an early level of Period I C.

35. A concave necked jar having a high sloping shoulder, prominent incised ridges below the ovaloid profile and a semioxidized body. Its exterior surface below the ridge is roughened. It is treated above the ridge with light red wash. The rounded portion below the ridge bears soot marks. From a late level of Period I C.[1]

36. A short concave necked jar having a grooved rim, a bulbous profile and a fully oxidized body with trimmed exterior. It is treated with red wash on the two surfaces. While the neck is decorated with a band of deeply incised pinholes, the lower exterior surface bears traces of soot marks. From an early level of Period I C.

37. A low necked jar with a short outturned featureless rim, bulbous semioxidized body which is decorated with series of vertically placed incised dashes and dots forming a shoulder band. The outer surface and part of the inner rim and neck is treated with deep red wash. From an early level of Period I C.[2]

38. A low concave necked bulbous jar with a featureless rim, over burnt black body having blotchy surfaces, roughened below the shoulder, where a band is seen with triangular incisions. The outer surface was originally treated with red slip and bears soot marks on the rough body surface. From a late level of Period I C.[3]

Fig. 58

39. An oxidized shoulder fragment of a large bulbous jar having triple horizontal applique ribbing, which is decorated with a series of incised diamonds. Below is another band of deeply incised slanting strokes on the body. The outer surface is treated with deep red slip. From a late level of Period I C.[4]

40. A fired fragment bearing red slip and similar incised pattern. From a late level of Period I C.[5]

41. An oxidized body fragment of a jar bearing triple horizontal applique ribbings. It is decorated with short and deep vertically incised strokes. The body is treated with red wash; it appears to have been roughened on the lower exterior where soot marks are apparent. From a late level of Period I C.

42. A small fully oxidized sherd bearing double applique ribbings. It is decorated with short deeply incised vertical strokes; It is treated with red wash on the outside. From a late level of Period I C.

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[1] Sankalia *et al* 1969, fig 77.221 (R)

[2] *ibid.*, fig 10.20 (Gr.)

[3] *ibid.*, fig 16.36 (Gr.).

[4] Rao 1962, fig 45.113, 129 (Gr.).

[5] *ibid.* fig 32 B 18, Sankalia *et al* 1969, figs 36.93 a, 36.83 b, 65.174 (R).

43. An oxidized sherd with a blackish core having an applique horizontal ribbing on the outside. It is decorated with a series of incised diamonds. Surface treatment could not be ascertained owing to encrustations. From a late level of Period I C.

44. An oxidized fragment with brownish core, having a mild applique horizontal ribbing with shallow incised decorations. The surface, treated with reddish wash, is coarsened below the ribbing. From a late level of Period I C.[1]

45. An oxidized but overburnt sherd with a low horizontal applique ribbing having incised diamonds and below, on the body, is a band of deeply incised chevrons. The two outer surface appear to have been originally treated with red wash. From a late level of Period I C.[2]

46. An oxidized fragment having short incised vertical strokes above a prominent applique horizontal ribbing and on the body below multiple incised crisscross strokes. The outside surface is treated with thin red slip and the lower edge of the ribbing bears soot marks. From a late level of Period I C.[3]

47. An oxidized sherd bearing a horizontal applique ribbing incised with deep vertical strokes. Below, on the body, are multiple deeply incised slanting strokes. The surfaces are treated with thin red slip. From a late level of Period I C.[4]

48. An oxidized fragment with a horizontally placed applique ribbing. It is decorated with short vertical incised strokes. Below, on the body, are deeply incised regular crisscross strokes. The outer surface is treated with thin red slip. From a late level of Period I C.

49. A semioxidized fragment bearing an incised band of crisscross lines over a red slipped surface burnt reddish grey. Below, the surface seems to have been roughened. From a late level of Period I C.[5]

50. An oxidized shoulder fragment of a bulbous jar. It is treated on the outside with red wash. On the body below is a broad band of deeply incised criss cross lines. From a late level of Period I C.[6]

51. An oxidized sherd with an overburnt body. It is treated with a red slip. On the outside, below a mild horizontal ribbing, is a broad band of shallow incised crisscross lines. From a late level of Period I C.[7]

52. A fully oxidized sherd of a bulbous jar, bearing a prominent applique horizontal ribbing with short incised verticals. Below it, on the body, is a broad band of deeply incised crisscross lines. The outer surface above the ribbing is treated with red slip and that below the incised band appears to have been coarsened and bears traces of soot marks. From an early level of Period I C.

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[1] Sankalia *et al.* 1969, fig. 36.84 (R)

[2] *ibid.*, fig. 36.85 c (R).

[3] *ibid.*, fig. 37.87 (R).

[4] *ibid.*, fig. 36.83 a (R)

[5] *ibid.*, fig. 36.93 (R).

[6] *ibid.*, fig. 67.193 (R)

[7] *ibid.*, fig. 10.20 g (Gr.)

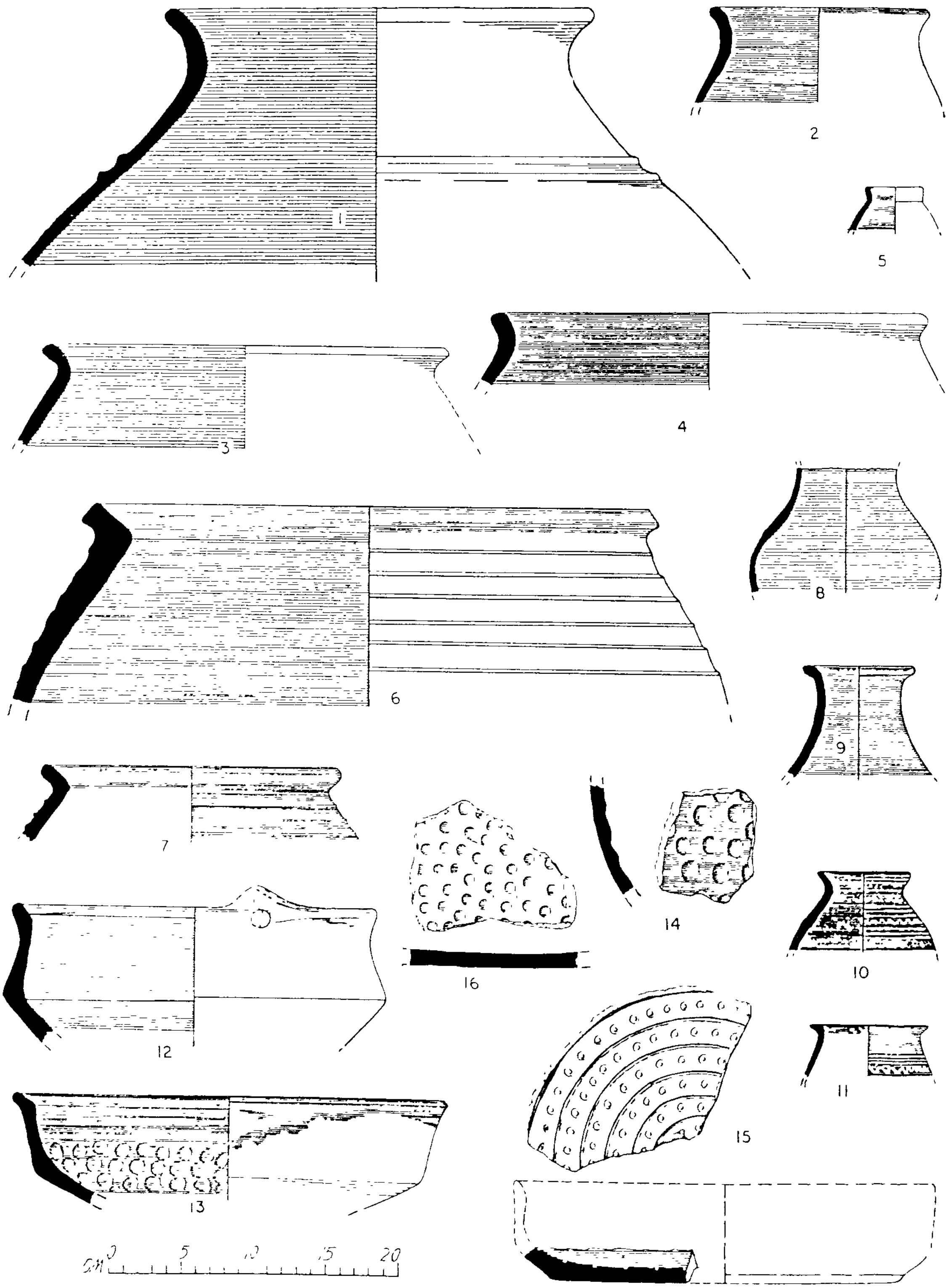


Fig 59 Pottery

53. A small semioxidized sherd treated with a reddish brown wash on the outside. In the middle is an applique horizontal ribbing decorated with shallow incisions. Below, on the body, is a band of deeply incised criss cross lines. From a late level of Period I C.

54. An oxidized sherd, treated on the outside with red slip. On the exterior are two applique horizontal ribbings, the lower one being incised with deep vertical strokes. From an early level of Period I C.[1]

(viii) Black-and-Red Ware

Fig. 59

1. A concave necked sturdy storage jar with a featureless rim, bulbous profile and semi oxidized body with black interior and a deep red slip on the outer surface. It is decorated with a couple of horizontal applique ribbings on the shoulder. From a late level of Period I C.[2]

2. A concave necked small jar with a featureless rim, bulbous profile and semi oxidized body with a black interior. The outer surface has light red slip. From a late level of Period I C.[3]

3. A low necked jar with a short outturned rim, bulbous profile and semioxidized body, with black interior and brown washed outer surface coarsened below the shoulder. From an early level of Period I C.[4]

4. A short concave necked jar with a featureless rim, bulbous profile, semioxidized body and a deep red-slipped exterior. From a late level of Period I C.

5. A miniature vessel with a vertical featureless rim, a bulbous profile, a semi oxidized body with a black interior and a red slipped exterior surface. From an early level of the Period I C.[5]

6. A neckless jar with an outturned externally bevelled rim, bulbous profile with mild multiple ribbings on the shoulder, and a semi oxidized body. The rim and interior are black. It has a red slipped outer surface. From a late level of Period I C.[6]

7. This is a small neckless jar with outturned featureless rim, bulbous profile with mild multiple ribbing on the slopping shoulder and a fully reduced body with rough black interior and black slipped exterior surface. From a late level of Period I C.

8. An ovaloid jar with a long concave neck and a semi reduced body with a coarse black interior and a black smooth slipped exterior. From a late level of Period I C.

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[1] Sankalia *et al* 1969, fig. 36.83 c (R)

[2] *ibid.*, figs. 15.33, 16.34 b (Gr.); 29.72 (R).

[3] *ibid.*, fig 6.5 c

[4] *ibid.*, figs. 6.5a, 8.9.

[5] *ibid.*, fig. 9.11

[6] *ibid.*, figs. 15.33, 16.34 b (Gr.), 29.75 (R)

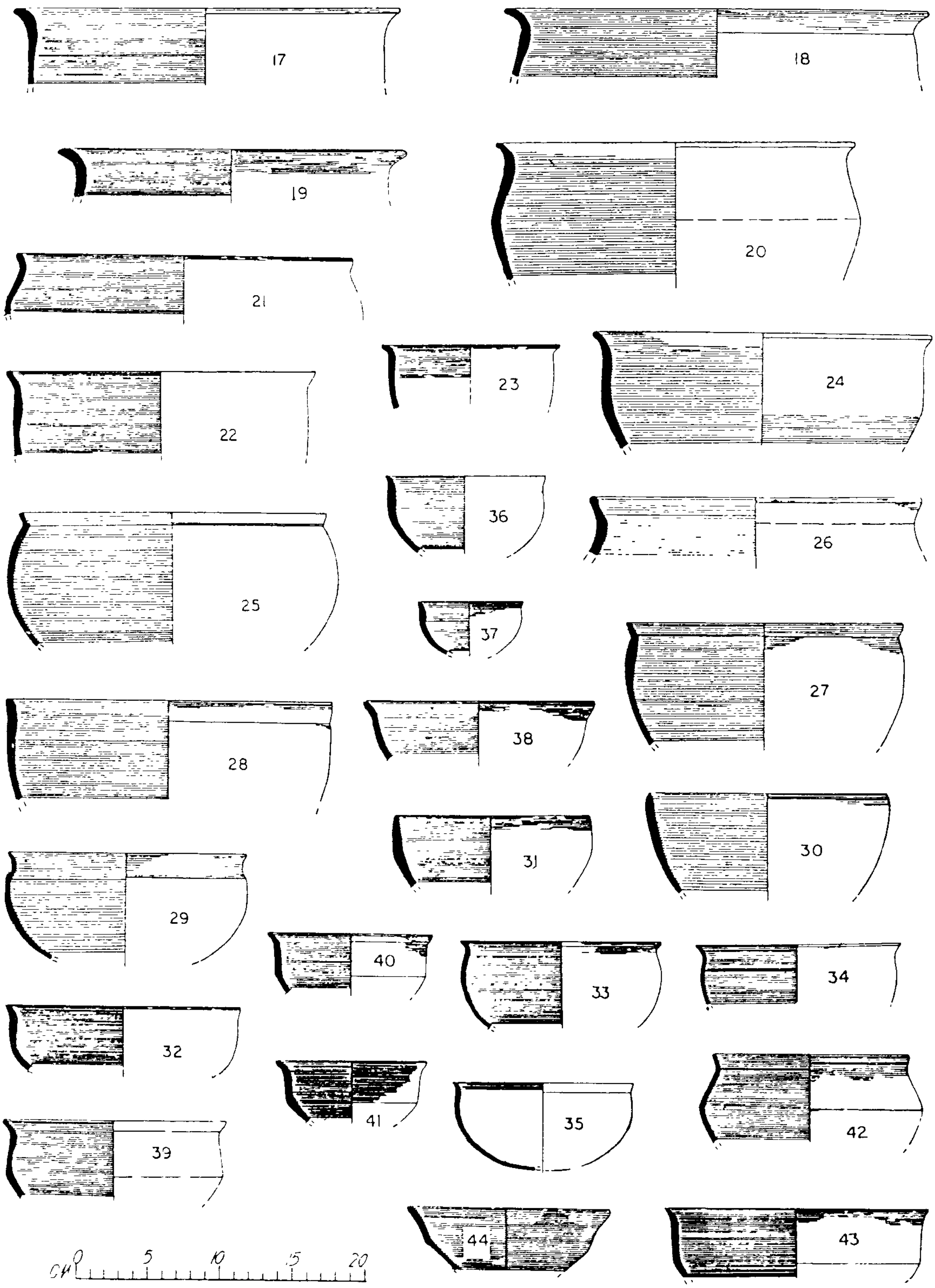


Fig 60 Pottery

9. A long concave-necked ovaloid jar with a beaked rim, fully reduced body with a coarse black interior and a smooth-slipped black exterior. From a late level of Period IC.

10. A short concave necked vessel with a bulbous profile, a fully reduced body with a coarse black interior and slipped black exterior surface. It is decorated with horizontal straight and wavy lines in white. From an early level of Period I C.

11. An almost neckless bulbous vessel with a short projected rim, fully reduced body with a coarse black interior and slipped black rim and exterior surface. It is decorated with horizontal straight and wavy lines in white. From an early level of Period I C.[1]

12. A deep basin with a carinated profile, rounded bottom, concave sides, a featureless rim and vertically placed perforated lug handles. Its fully reduced body has black slipped smoothened surface. From a late level of Period I C.

13. A deep basin with a carinated profile, slightly splayed out sides, featureless rim and vertically placed perforated lug handles. Its fully reduced body has black slipped smoothened surface. From a late level of Period I C.

14. A fully reduced sherd with a pitted black interior and a coarse red exterior. From an early level of Period I C.

15. A fully reduced fragment of the flat bottom of a troughlike pan. The interior dark brown bottom surface is decorated with half punched circles within incised concentric circles. The outer surface is washed red. From a late level of Period I C.

16. A reduced flat bottom fragment with half punched circles on a black-brown inner surface. The outer surface is red washed. From an early level of Period I C.

Fig. 60

17. A deep basin with an outturned rim, vertical sides and a semi reduced body with black interior and red-slipped exterior surface. From a late level of Period I C.

18. A deep basin with an outcurved rim, slightly sloping sides a reduced body with black interior and the outer rim and red washed outer surface. From a late level of Period I C.

19. A similar basin with an outcurved rim, almost vertical sides and a reduced body with black interior and outer rim and red exterior surface. From a late level of Period I C.

20. A deep bowl with a short outcurved rim, a bluntly carinated profile and a reduced body with black interior and red slipped outer surface. From an early level of Period I C.

21. A deep bowl with an everted rim, a bluntly carinated profile and a partially reduced body with black interior and red washed exterior. From a late level of Period I C.[2]

22. A deep bowl with an outturned rim, almost vertical sides and reduced body with

[1] Sankalia *et al*:1969, fig 2 D3, 3 9g

[2] Sankalia *et al*. 1969, figs 2 D4; 45 98a (b), Srivastava 1971 fig 2 11 Lothal

a black interior and a brownish-cream exterior surface. From an early level of the Period I C.[1]

23. A deep bowl with an everted rim, a rounded profile and reduced body with black interior and red washed exterior surface. From a late level of Period I C.[2]

24. A deep bowl with an outcurved beaked rim, a bluntly carinated profile and reduced body with smoothened black interior and red slipped exterior, turning dull black below the carination. From an early level of Period IC.

25. A deep bowl with a slightly everted rim, convex profile and reduced body with smooth-black interior and red slipped exterior surface. From an early level of Period IC.[3]

26. A concave necked jar with a shallow depression on the inner side of the featureless rim, a bulbous profile and a reduced body with a smoothened black interior and red slipped exterior surface. From an early level of the Period IC.

27. A deep bowl with a slightly everted rim, convex profile and reduced body with burnished shining black interior and part of the outer rim and deep red slipped burnished exterior surface. From an early level of Period IC.[4]

28. A deep bowl with an internally thickened featureless rim, almost vertical sides, rounded profile and reduced body with dull black interior and dull red exterior surface. From a late level of Period IC.[5]

29. A deep bowl with a slightly everted rim, convex profile and semi reduced body with dull black interior and blotchy rim. From a late level of Period IC.[6]

30. A deep bowl with a featureless rim, tapering sides and reduced body with black rim and interior and dull red exterior. From a late level of Period IC.[7]

31. A deep bowl with a featureless rim, an imperceptibly carinated profile and reduced body. Its interior and exterior rim are dull black. The dull red exterior has blotchy surface. From an early level of has Period IC.[8]

32. A deep bowl with a slightly everted rim, convex profile and reduced body with black interior and red exterior. From an early level of Period IC.

33. A deep bowl with an everted rim, convex profile and reduced body with smoothened black interior and rim on the outside. From a late level of Period IC.

34. A deep bowl with an outcurved rim, convex profile and reduced body with shining black interior and red exterior. From an early level of Period IC.[9]

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[1] Sankalia *et al* . 1969, fig 51.157

[2] *ibid* . fig 2 D5, Srivastava· 1971, fig 2.3 Lothal

[3] *ibid* . fig 46.106 (b)

[4] *ibid*., fig 2.3b.

[5] *ibid* . fig 3 4c; 2 5 Lothal

[6] *ibid* . 2 6 Lothal

[7] Sankalia *et al* 1969, fig 3 4j. Rao 1962, fig 44.107 c, 108; Srivastava· 1971, fig 2,7,9 Lothal.

[8] Sankalia *et al* 1969, fig 4 D12

[9] Srivastava· 1971, fig 2 8 Lothal

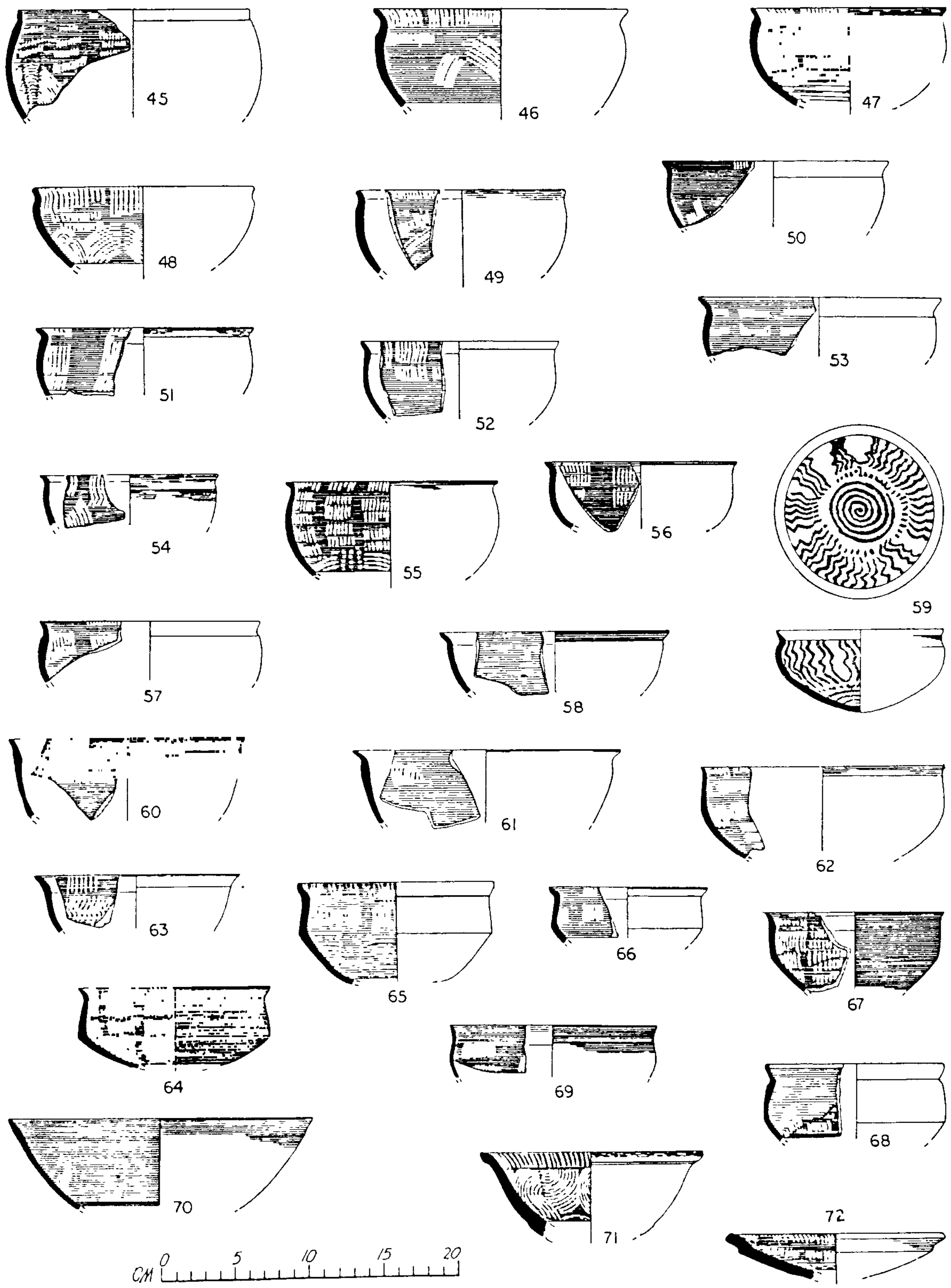


Fig 61. Pottery

35. A deep bowl with an everted rim, rounded profile and reduced body with dull black interior and exterior surfaces. From an early level of Period IC.

36. A deep bowl with an everted rim, rounded profile and reduced body with burnished black interior and red exterior surface. From a late level of Period IC.[1]

37. A deep bowl with an everted and internally thickened rim, rounded profile and reduced body with burnished black interior and exterior rim and red exterior. From an early level of Period IC.[2]

38. A deep bowl with a short outturned rim, rounded profile and reduced body with black outer rim and interior and dull red exterior surface. From an early level of Period IC.

39. A deep bowl with an everted rim, a carinated profile and reduced body with dull black interior and dull red exterior. From a late level of Period IC.[3]

40. A deep bowl with a short everted rim, carinated profile and reduced body with dull black interior and dull red exterior surfaces. From a late level of Period IC.

41. A deep bowl with an everted rim, carinated profile and reduced body with black interior and grey black exterior. Traces of burnishing on both the surfaces are to be seen. From an early level of Period IC.[4]

42. A deep bowl with an everted rim, carinated profile, reduced body with burnished black interior and outer rim and deep red burnished blotchy exterior surfaces. From an early level of Period IC.[5]

43. A deep bowl with a short everted rim, carinated profile and reduced body with dull black interior and dull red exterior surface. From a late level of Period IC.[6]

44. A dish with a splayed out featureless rim, rounded profile and reduced body with burnished black interior and blotchy exterior. From a late level of Period IC.[7]

Fig. 61

45. A deep bowl having a slightly everted rim with a shallow groove, a convex profile and a reduced body with burnished black interior and burnished red exterior. It is decorated on the inside with horizontal groups of short vertical strokes and radiating groups of arcs in fugitive white. From a late level of the Period IC.[8]

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[1] Sankalia *et al* · 1969, fig. 2 3h., 46 104.

[2] *ibid*., fig 46.105 (ib).

[3] Rao 1962, fig. 44.119 a

[4] *ibid*., fig 44.118 b; Sankalia *et al* 1969, fig 7 7

[5] *ibid*., fig. 74 196 e

[6] Rao 1962, fig. 35 59.

[7] Sankalia *et al* 1969, figs. 21 49 (Tan); 47.119 (ib).

[8] *ibid*., figs 2 3d, 7.D61, 7 D71, 73 249 K.

46. A deep bowl with an everted rim, an incipient ridge on the shoulder, rounded profile and reduced body with a burnished black interior and dull red burnished exterior. It is decorated on the inside with horizontal groups of short vertical strokes and groups of radiating arcs in fugitive white. From a late level of the Period IC.[1]

47. A deep bowl with an everted rim, rounded profile and oxidized body with burnished black interior and dull red exterior surface. It is decorated on the inside with multiple horizontal groups of short vertical strokes and multiple concentric bands painted in fugitive white. From a late level of Period IC.

48. A deep bowl with an everted rim, convex profile and reduced body with burnished black interior and burnished red exterior. It is decorated on the inside with horizontal groups of short vertical strokes and groups of multiple radiating arcs painted in fugitive white. From an early level of Period IC [Pl. XL, 6].

49. A deep bowl with a short everted rim, rounded profile and reduced body with a burnished black interior and burnished red exterior. It is decorated on the inside with horizontal radiating arcs painted in fugitive white. From an early level of Period IC.[2]

50. A deep bowl with short everted rim, convex profile and reduced body with a black rim and black burnished interior and deep red burnished exterior. It is decorated on the outside with horizontal groups of short vertical strokes on the rim and long strokes on the bottom painted in fugitive white. From an early level of Period IC.

51. A deep bowl with an everted rim, rounded profile and reduced body with burnished black interior and burnished red exterior. It is decorated on the inside with groups of short and long vertical strokes painted in fugitive white. From an early level of Period IC [Pl. XL, 4].

52. A deep bowl with a short everted rim with black exterior, a rounded profile and a reduced body with a black burnished interior and a red slipped exterior. It is decorated on the inside with groups of long vertical strokes painted in fugitive white. From an early level of Period IC [Pl. XL, 5].

53. A deep bowl with a short everted rim, rounded profile and reduced body with a burnished grey interior and light red exterior. It is decorated on the inside with multiple horizontal groups of short vertical strokes painted in fugitive white. From an early level of Period IC [Pl. XL, 14].

54. A deep bowl with a slightly everted rim, rounded profile and reduced body with a burnished black interior and slipped-red exterior. It is decorated on the inside with groups of wavy strokes and radiating arcs painted in fugitive white. From a late level of Period IC[3] [Pl. XL, 7].

55. A deep bowl with a short everted rim, convex profile and a burnished black

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[1] Sankalia *et al* · 1969 fig. 7.6, 6b, 7, D 58.

[2] *ibid.*, fig. 49 131 (ib).

[3] *ibid.*, fig. 2.3c.

interior and burnished red slipped exterior. It is decorated on the inside with horizontal groups of vertical strokes and radiating arcs and dots painted in fugitive white. From a late level of Period IC[1] [Pl. XL, 1].

56. A deep bowl with a short everted rim, rounded profile and reduced body with a grey burnished interior and dull red exterior. It is decorated on the inside with horizontal groups of short, vertical strokes painted in fugitive white. From a late level of Period IC.

57. A deep bowl with a short everted rim and rounded profile and a reduced body with a burnished grey interior and red exterior. It is decorated on the inside with horizontal groups of short vertical strokes painted in fugitive white. From an early level of Period IC.[2]

58. A deep bowl with a short everted rim, rounded profile and reduced body with a black burnished interior and red slipped exterior. It is decorated on the inside with horizontal groups of short vertical strokes painted in fugitive white. From a late level of Period IC.

59. A deep bowl with a short everted rim, rounded profile and an oxidized body with a deep red blotchy interior and a deep red exterior. It is decorated on the inside with a spiral in the bottom and multiple wavy lines hanging from the rim painted in fugitive white. From an early level of Period IC.[3]

60. A deep bowl with a short everted rim, a shallow grooved neck and tapering sides with a rounded profile and reduced body with a black burnished outer rim and interior and dull red exterior. It is decorated on the inside with groups of short vertical strokes on the rim, painted in fugitive white. From a late level of Period IC[4] [Pl. XL, 12].

61. A deep bowl with a short everted rim, rounded profile and reduced body with a black burnished interior and dull red exterior. It is decorated on the inside with groups of curved strokes painted in fugitive white. From the late level of Period IC.

62. A deep bowl with a short everted rim, rounded profile and reduced body with a black burnished interior and red slipped exterior. It is decorated on the inside with horizontal groups of short vertical strokes painted in fugitive white. From a late level of Period IC [Pl. XL, 16].

63. A deep bowl with a short everted rim, tapering sides and rounded profile with a reduced body with greyish-black burnished interior and red slipped burnished exterior. It is decorated on the inside with horizontal groups of short vertical and wavy strokes painted in fugitive white. From a late level of Period IC.

64. A deep bowl with a slightly everted rim, carinated profile and reduced body with burnished black surfaces. The interior is decorated with groups of short vertical strokes

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[1] Sankalia *et al* 1969 fig 50. 149.

[2] *ibid*., fig 3 4 c

[3] *ibid*., fig 3 4e, 4 D8, 8.D65.

[4] *ibid*., fig 3 4 c

on the rim and the sides and multiple radiating arcs on the bottom painted in fugitive white. From a late level of Period IC.[1]

65. A deep bowl with a short everted rim, carinated profile and reduced body with a brownish black burnished outer rim and interior and brownish black burnished exterior surface. It is decorated on the inside with horizontal groups of short vertical strokes on the rim and sides and multiple radiating arcs on the bottom painted in fugitive white. From an early level of Period IC[2] [Pl. XL, 3].

66. A deep bowl with a short everted rim, carinated profile and reduced body with a burnished brown grey interior and a deep red slipped and burnished exterior. It is decorated on the inside with horizontal groups of short vertical strokes painted in fugitive white. From a late level of Period IC.

67. A deep bowl with a short everted rim, carinated profile and a fully reduced body with a burnished black interior and a dull black exterior. It is decorated on the inside with multiple horizontal groups of short vertical strokes painted in fugutive white. From a late level of Period IC [Pl. XL, 15].

68. A deep bowl with a short everted rim, carinated profile and reduced body with a tan red slipped burnished blotchy interior and similar exterior. It is decorated on the inside with horizontal groups of short vertical strokes and multiple radiating arcs painted on the bottom in fugutive white. From a late level of Period IC.

69. A deep bowl with a short everted rim and a mild carinated profile, reduced body with black burnished interior and brownish black exterior surface. It is decorated with groups of vertical strokes on the rim and sides in fugutive white. From a mid-level of Period IC.

70. A deep bowl with a featureless rim, tapering sides and reduced body with a black burnished rim having black burnished surface and deep red-slipped burnished exterior surface. It is decorated on the inside with a horizontal line with multiple upgoing hooks painted in fugutive white. From a late level of Period IC.

71. A deep, sturdy bowl with a short splayed-out rim, rounded profile and reduced body with a black burnished interior and red slipped burnished exterior. It is decorated on the inside with short vertical strokes and multiple radiating arcs facing in divergent directions on the rim, painted in fugutive white. From a late level of Period IC[3] [Pl. XLI, 2].

72. A shallow dish with an outgoing featureless rim, tapering sides and reduced body with burnished black interior and burnished red slipped exterior. It is decorated on the inside with horizontal groups of short vertical strokes and groups of multiple radiating arcs painted in fugitive white. From an early level of Period IC [Pl. XL, 9].

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[1] Sankalia *et al* 1969, figs. 46.104 a, 74 196 b

[2] *ibid*., figs 7 7, 74.196 e 91c

[3] *ibid*., fig. 75 199 (Ic), Rao: 1962, fig 31 64

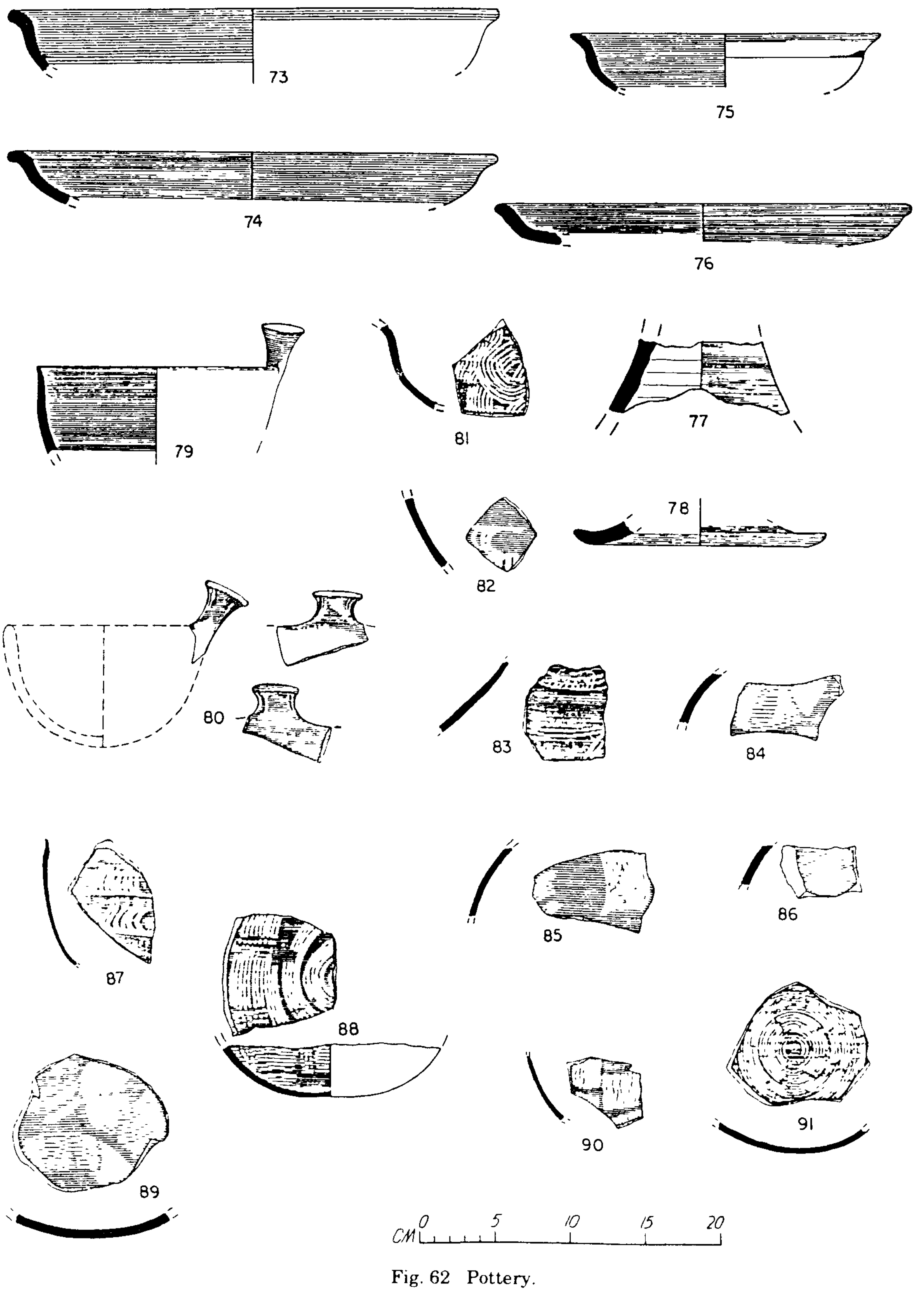


Fig. 62 Pottery.

Fig. 62

73. A shallow dish with an outcurved beaked rim, rounded profile and reduced body with a burnished black interior and burnt red slipped exterior. From late level of Period I C.

74. A shallow dish with an outcurved beaked rim, rounded profile and reduced body with a burnished black interior and burnt red slipped exterior. From a late level of Period I C.[1]

75. A deep dish with an outcurved featureless rim, rounded profile and reduced body with a black burnished interior and a dull red slipped exterior. From a late level of Period I C.

76. A round bottomed dish with short outgoing sides and a featureless rim. It has a reduced body with black burnished surfaces. From an early level of Period I C.[2]

77. A hollow stem of a stand with sloping sides, reduced body with a dull grey coarse interior and black burnished exterior. From an early level of Period I C.[3]

78. A sloping bottom of a stand with upcurved edges, reduced body and black burnished surfaces; the interior, however, is left unburnished. From a late level of Period I C.

79. A short stud-handled bowl with featureless sharp rim, rounded profile and reduced body with burnished black interior and a red-slipped burnished exterior. From an early level of the Period I C.[4]

80. A short stud-handled bowl with a featureless rounded rim, rounded profile and reduced body with black burnished interior and a red slipped exterior. From a late level of Period I C.

81. A fragment of a deep bowl with an everted rim, rounded profile and reduced body with burnished black interior and a dull red slipped and burnished exterior. It is decorated on the inside with groups of wavy strokes and concentric circles painted in fugitive white. From a late level of Period I C.

82. A fragment of a deep bowl with a reduced body having a burnished black interior and a red slipped exterior. It is decorated on the inside with groups of wavy strokes and concentric circles painted in fugitive white. From a late level of Period I C.

83. A shoulder fragment of a bulbous vessel with a reduced body having dull grey interior and a black burnished exterior. It is decorated with multiple lined horizontal bands having in one case a number of short vertical lines and a slanting band painted in fugitive white. From an early level of Period I C.

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[1] Rao.1962, fig. 7.6 a.

[2] *ibid.*, fig 47.114 (ib)

[3] *ibid.*, fig. 7.6

[4] Srivastava: 1971, fig. 2.2 Lothal

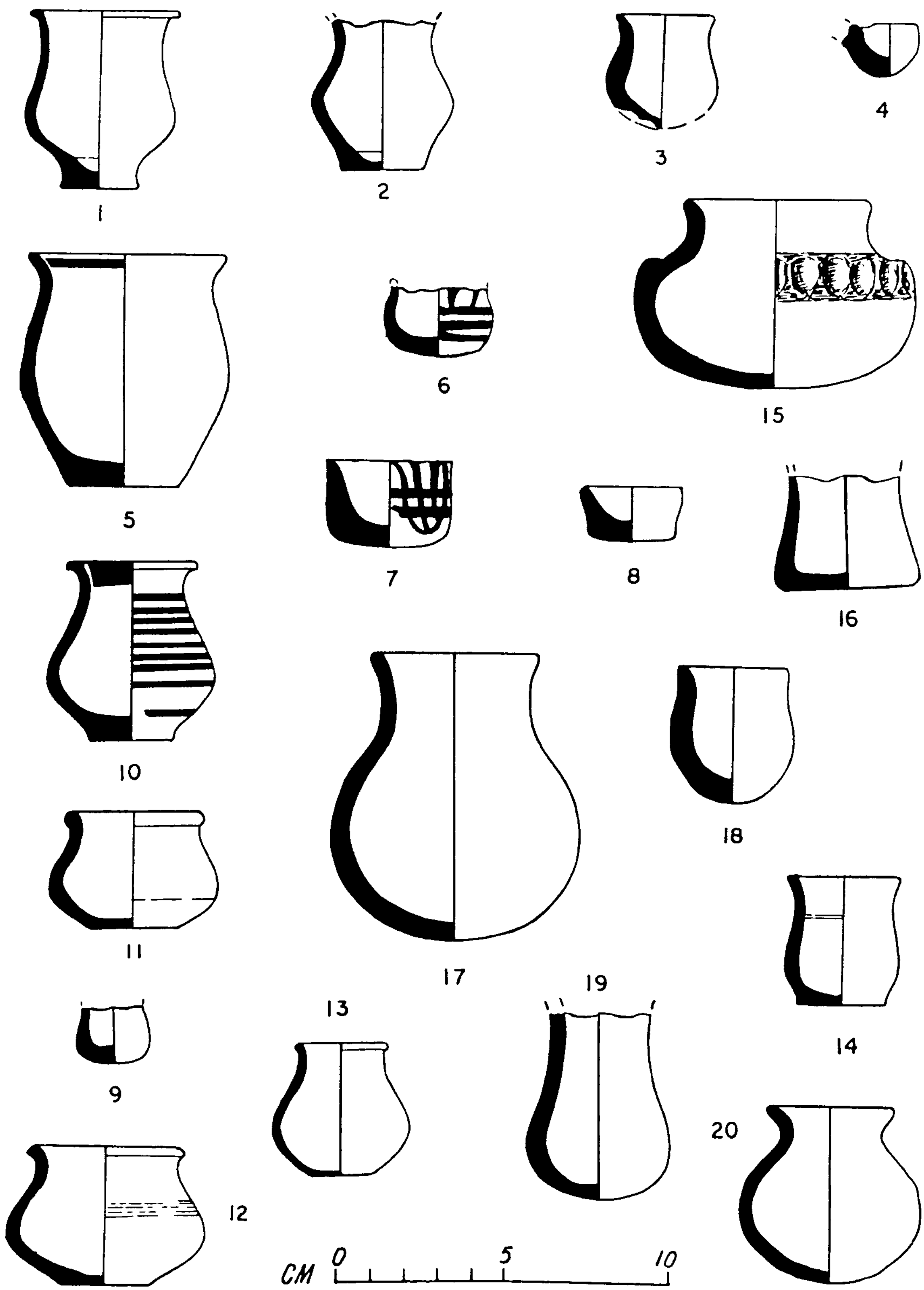


Fig. 63. Pottery.

84. A reduced sherd with burnished black interior and a dull red slipped burnished exterior. It is decorated with fugitive white. From a late level of Period I C.

85. A reduced sherd with burnished black interior and a deep red slipped burnished exterior. It is decorated on the inside with multiple long and short curved strokes painted in fugitive white. From a late level of Period I C.

86. A small reduced sherd with a black burnished interior and a deep red slipped burnished exterior. It is decorated on the inside with multiple radiating arcs painted in fugitive white. From an early level of Period I C.

87. A deep bowl with a featureless rim, tapering sides and reduced body with a blackened rim and black burnished interior and deep red slipped lower exterior. It is decorated with horizontal lines having multiple upcurved hooks upon them, painted in fugitive white. From an early level of Period I C.

88. A rounded bottom sherd of a deep bowl with a reduced body having a burnished black interior and a red-slipped burnished exterior. It is decorated on the inside with multiple radiating arcs punctuated with dots painted in fugitive white. From an early level of Period IC

89. A rounded bottom of a deep bowl with a reduced body having a burnished black interior and a red-slipped burnished exterior. It is decorated on the inside with multiple radiating arcs and groups of aligned short strokes painted in fugitive white. From an early level of Period I C.[1]

90. A fragment with a reduced body, a burnished black interior and a dull grey black exterior. It is decorated on the inside with groups of multiple wavy lines painted in fugitive white. From a late level of Period I C.

91. A rounded bottom of a deep bowl with a reduced body having a burnished black interior and a dull black exterior. It is decorated on the inside with multiple concentric circles painted in fugitive white. From an early level of Period I C.

(ix) Miniature pots

Fig. 63

1. A miniature jar with a featureless rim, concave sides, bluntly carinated profile and a low footed string-cut flat base. Fully oxidized, it is treated on the outside with red wash. From the lower levels of period I C.[2]

2. A similar miniature jar with a flat base. Fully oxidized, it is treated on the outside with black slip. From an early level of Period I A.

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[1] Sankalia *et al*: 1969, fig. 18. T.A.

[2] Mackay: 1938, Pls. LXII. 34, 36; LXV 4; Marshal: 1931, Pl. LXXXI.7,10; Wheeler: 1947, fig. 17, XXII, XXIIb, XXIII.24.6; Rao: 1962 fig. 23.81, 82; Sankalia *et al*: 1969, fig. 90.252 a-b (R) ic.

3. A miniature jar with a featureless rim, concave sides and a rounded bottom. Fully oxidized, it is treated with thin red slip on the outside. From an early level of Period I A.[1]

4. A miniature bowl with probably a raised hold. Semioxidized, its surface appears to have been treated with a red wash. From a late level of Period I C.[2]

5. A miniature jar with a featureless rim, concave neck and bulbous body with a flat base. Fully oxidized, it is treated with red wash, burnt blotchy and on the rim top is painted a black band. From an early level of Period I A.

6. A miniature bowl with a featureless rim, vertical sides and a flat bottom. Fully oxidized, the body is treated with a red slip, over which are painted short vertical strokes above a triple lined horizontal band in black. From an early level of Period I B.

7. This is a similar bowl with a fully oxidized body. It is treated with red slip on the outside and painted with double lined horizontal bands, crossed over by loop patterns in black. From a late level of Period I C.[3]

8. This is a similar miniature bowl with a semioxidized body and undecorated surfaces. From the late level of Period I C.

9. This is a similar bowl with sloping sides and somewhat constricted mouth and oxidized body. From a late level of Period I C.[4]

10. This is a miniature jar with a short beaked rim, concave sides and a carinated profile. It is tapering to a stringcut flat base. Fully oxidized, the body is treated with a red wash, over which multiple bands are painted in black. On the inside rim also there is a broad band in black. From a late level of Period I C.[5]

11. This is a miniature vessel with a beaded rim, flat bottom and squattish body with a carinated profile. Its fully oxidized body is treated with red wash. From a late level of the Period I C.[6]

12. A miniature vessel with an externally bevelled rim, flat bottom and squattish body with a carinated profile. Fully oxidized, it is treated with red wash. From a late level of the Period I C.

13. A miniature vessel with a featureless rim, a concave neck, flat bottom and bluntly carinated profile. Its fully oxidized body is treated with red wash. From a late level of Period I C.

14. A miniature beaked jar with a featureless rim, concave sides, stringcut flat

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[1] Sankalia *et al*· 1969, fig. 53. 135 (Grey) (IB).

[2] *ibid*., fig. 112 4 (IC).

[3] *ibid*., fig. 112.5 (IC); Rao: 1962, fig. 24.114.

[4] Sankalia *et al*: 1969, fig. 112.9 (IA)

[5] Mackay: 1937, Pls. LXII.34.36; LXV.4; Marshall: 1931, Pls. LXXXI.710; Wheeler:1947 fig. 17. XXII, XXIIb, XXIII.24.6; Rao: 1962, fig. 23.81, 82; Sankalia *et al*: 1969, fig. 90.252 a-b (R) ic.

[6] Mackay: 1937, Pl. LVII.25; Rao: 1962, figs. 34.27, 35-56.

bottom and bluntly carinated profile. Its fully oxidized body is treated with red wash. From a late level of Period I C.[1]

15. A handmade coarse miniature *handi* with a concave neck, bulging body and rounded bottom. On the shoulder, there is an applique ridge decorated with fingertip depressions. It has a semioxidized body with a black core and red washed surfaces. From a late level of Period I C.[2]

16. A handmade miniature pot with concave sides. It is carinated near the broad flat bottom. The semioxidized body is treated with red wash which has turned blotchy. From a late level of Period I C.[3]

17. A handmade miniature jar with a featureless rim, concave neck, bulging body and a round bottom. The fully oxidized body is treated on the smoothened outside surface with red slip. From a late level of Period I C.[4]

18. A handmade coarse miniature jar with almost vertical sides, featureless rim and a rounded bottom. Semioxidized, the untreated surface has turned blotchy grey. From the late level of Period I C.

19. A handmade miniature vessel with high concave sides. It is carinated near the rounded bottom. Its reduced body is treated with black slip (?) over the smoothened surface. From a late level of Period I C.[5]

20. A handmade miniature vessel with a featureless rim, concave neck, bulging body and rounded bottom. The semioxidised body does not appear to have had any surface treatment. From an early level of Period I C.

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[1] Mackay. 1937, Pls. LXII.34,36; LXV.4; Marshall:1931, Pl. LXXXI.7,10; Wheeler:1947 fig. 17.XXII, XXIIb, XXIII.24.6; Rao:1962, fig. 23.81, 82; Sankalia *et al:* 1969, fig. 90.252 a-b (R) 1c.

[2] Sankalia *et al*: 1969., fig. 55.15.1536 (Gr.16).

[3] *ibid.*, fig. 113.1 (IB); Marshall:1931, Pl. LXXXI.2,3.

[4] Rao:1962, fig. 39.48; 43.104; Mackay: 1937, Pl. LVII.18.

[5] Sankalia *et al*: 1969, fig. 113.5 (IC); cf. *I.A.R.* 1955-56, fig. 7 Nagda.

8. OTHER FINDS

A. LITHIC TOOLS

(I) Chert Blades

The chert blades are index artefacts of Harappan civilization and indicators of the contribution of Stone Age material assemblage culminating into a highly civilized set up of Indus Valley cities.

While it is established that its occurrence is common to all Harappan sites found in Sind, Baluchistan, Gujarat and Rajasthan, the problem of its origin and exact period of its assimilation into the Harappan assemblage has not been studied in all its aspects. In view of its vital importance, the universally accepted nomenclature "Chalcolithic culture" to this glorious civilization has come to stay. It is significant that chert blades have had a wide distribution in India, invariably occurring with the Chalcolithic elements in Central India, Deccan and Karnataka.

As far as our prehistoric studies reveal, the 'blade' element occurred in the Middle Stone Age in India and in the Upper Palaeolithic age in Europe and Africa. However, keeping with the present discoveries, we may trace its earliest technical evolution, in view of its occurrence at Ur, Brak, Tepe Gawra, Kile Ghul Mohammed and KotDiji dated to 2605 $\pm$ 145 B.C.[1] in the offshoot of the Solutrean technique and influence of early Fayum[2] cultures of northeast Africa.

The chert blades, as an important cultural component, occur in Zhob[3] valley of Baluchistan. Chanhudaro, Kot Diji, Tharro Hills, Pandi Wahi, Jhukar, Ali Murad and Amri. Out of these Kot Diji and Amri appear to be of the earliest date, in view of the occurrence of burinate tools on cores, saw edged blades and scrapers.[4] These are not products of the full-fledged "ribbon-flake-blade" industry. At Chanhudaro, alongwith ribbon-flake-blades, there are saw-edged blades, comparable to the Kish speciman dated to 3000 B.C.[5] Identical specimens are found at Surkotada also from earlier levels.

Mackay suggests that the saw edged blade was used to bore beads. This does not seem practicable but appears to be more useful in grinding the surface of beads or its facets.

However, chert blade assemblage from Mohenjo-daro shows closer affinity to Rohri Industry than to Harappa. For Harappa, Surjangal seems to be a supplying centre where

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[1] V Gordon Childe, *New Light on most Ancient East*, (London, 1952), pp 181-182.

[2] Robert J. Braiwood, *Prehistoric Man*, (Chicago, 1965), pp.88-89.

[3] Khan: 1965, p.38.

[4] Stuart Piggott, *Pre-historic India*, (Middlesex,1950), p.121.

[5] Mackay, *op. cit.* 1943, p 320.

abundance of flint material and a large quantity of exportable artefacts made of flint were found. So, Surjangal might be the principal centre in the Zhob region for disposal into Amri, Pandi Wahi, etc. on one side and Harappa, Surtkagendor, etc.[1] on the other. At Harappa,[2] Wheeler's excavation has stratigraphically revealed Rana Ghundai III, underlying the earliest Harappa stratum, wherefrom these tools have been recorded.

Thus, this important lithic industry's origin may be traced to the Fayum culture of northeast Africa and not to the Solutrean culture and its dispersal to Surkotada from Mohenjo-daro and Kot Diji on the one side and Kalibangan on the other. In course of time this type and technique became a prominent trait of the Chalcolithic Cultures of Central India and the Deccan.[3]

Before concluding, it is better to record the discovery of another important area of large scale factory sites of the chert blade industry found recently in the upper Krishna basin of North Karnataka. The material exhibited at Mysore during an exhibition by the Central Advisory Board of Archaeology, clearly shows a prominent full-fledged chert blade industry as there were a good quantity of chert cores, nodules, flakes, finished and unfinished blades, similar to the ones found at Lothal, Rangpur, Surkotada and other chalcolithic sites of the Deccan. Of course, its potentiality and possibility as a source for chert blades of Harappan sites of Gujarat and the chalcolithic sites of Deccan, can be established only after a thorough fieldwork in that region. This is further supported by the fact that these sites are of the Late Stone Age horizon and the Neolithic site, Bagor, excavated recently by the Mysore Archaeological Department which has established the finding of chert blades, steatite beads, horse bones, etc. However, this chert blade industry's dispersal to Gujarat Harappan sites cannot be ruled out at this stage.

(i) Technique

Chert, in its natural form, has a smooth fracture and therefore offers excellent results in flaking, especially like ribbon flakes with parallel sides. Its hardness also enables the resultant tools to be used in preparing many things out of wood, ivory, steatite, bone, shell, etc.

The parallel sided ribbon flakes, can be made into a knife blade, side-scraper, engraver, etc. Generally, it is thicker at the bulbar end. Many flakes are rejuvenated as scrapers.

Both 'Pressure flaking' and 'Percussion flaking' techniques have been adopted in taking out these ribbon flake blades. Trapezoidal cross section results from the former technique, while thick short bulbar ends having triangular cross section result from the latter technique. The triangular section flakes are usually used to prepare awls, borers, side scrapers, etc.

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[1] Mackay, *op cit.*, 1938, pp.639-643.

[2] Wheeler, *op cit.*, 1947 p.21.

[3] H. D. Sankalia, S. B. Deo and B. Subbarao, *Excavation at Mahesuar and Navadatoli*, 1952-52, (*Pune-Baroda, 1958*).

However, though these types and techniques had a wide distribution in chalcolithic cultural assemblage in Central and Western India and the Deccan, so far it is not reported from upper Gangetic regions.[1]

The probable reason for amplification and improvement of the only "Blade" tool type by the adopters lies in the easy manipulation of 'blade' into multiple types for different uses *e.g*, when backed by flattening one edge, it becomes a knife; a transverse blow at one end produces an engraver; two opposite nicks provide a shouldered blade for hafting; by secondary pressure retouching, the thin margins can be made into 'Gouges' or 'Saws' or 'Sickle', etc.

At Surkotada, as at Kalibangan and Lothal, the chert blades occur right from the earliest levels to the latest levels. Surkotada being a uniculture site, the only interesting feature found in this group of tools is its frequency in all the three periods and some rare tool types which has given an interesting 'Blade Tool Industry' comparable to the one found at Jamdt Nasr site in Iraq.

At Surkotada chert forms 50% of the raw material used in preparing stone tools, and typologically chert blades form the major bulk. The chert blades are of high incidence in relation to its cores and flakes. From Periods I A to I C the frequency of chart blade increases steadily, as can be seen from the frequency chart below.

From a close study of the chert blades it can be observed that the banded chert was very rare while a tan brown variety was used very frequently. In the collected specimen of tools, unused ones are less than used ones. Most common types are typical parallel sided blades with truncated ends and sharp unretouched margins. The longest one measures 12 cm, the shortest 2.5 cm and the thinnest has 0.25 cm girth.

There appears to be some standardization of tools and highly controlled flaking of blades for particular tool types. It can be observed that for long blades or knives the breadth preferred was 2 cm to 2.5 cm; for middle groups having the length 6 to 5 cm breadth preferred was 2 cm to 1.50 cm and for high precision tools like engravers, sickles, saw edged blades, poker etc. the size of blade preferred was of 4 to 3.5 in length and 1 to 1.50 cm. in breadth.

(ii) Rare tool types

1. Mention may be made of a knife of razor coming from the earliest levels measuring 12 cm x 2.75 cm with sharp cutting edges comparable to specimens found in Harappa, Mohenjo-daro, Rohri and Ur.

2. Four engravers from early middle levels similar to the ones found at Lothal, Harappa, Mohenjo-daro, Brak and Ur remind us of tool used for engraving seals.

3. More interesting are the saw edged blades found from earliest levels, comparable to similar ones found from pre-Harappan levels at Amri[2] and that of Kish dating to 3000

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[1] Fairservis: 1971, p.419-424.

[2] K.V. Soundara Rajan, 'Lithic tools of Harappa culture and Allied Issues', *Journal of the M.S. University*, Baroda, 1966.

B.C. About 200 saw edged blades are reported from excavations at Shahr-i-Sokta[1] in Iran.

4. Rare and thought provoking types are haftable 'sickle' and 'poker' on blades. The point of interest is that these tools are not found in any of the Harappan sites so far dug either in Indus Valley, Rajasthan or Gujarat. But similar types have been reported from Anjira, Siah-damb and Surab in Kalat[2] dated to 3500 - 3100 B.C.

These tools types are almost akin to the specimen found in the Natufian culture of the neolithic horizon in Diyala Region.[3] Here, its significance may enhance in view of the fact that from the levels the tools have come, there has occurred a prolific bone-tool industry.

(iii) Chert Blades

Total Stone Blades/Cores/Flakes recovered: 370

Preliminary break-up of Chert Tools.

Blade	Core	Flake		
115	26	44	=	175

Percentage incidence of Chert Tools 50%

Period-wise break-up Chert Blades.

Period	Numbers		
I C	59		
I B	32		
I A	24	=	115

Fig. 64; Pl. XLII

1. Chert grey thick parallel sided blade, both ends are truncated, with sharp unretouched margins. Trapezoidal in section. Size 5.50 x 1.25 cm. From a late level of Period I C (SKTD-1356).

2. Chert brown thin broad parallel sided blade (burnishing blade). Unused, sharp cutting edge with visible bulb platform. The truncated end is worked into a convex burnishing tip by close retouching. Trapezoidal section. Size 5.50 x 2.25 cm. From a late level of Period I C (SKTD-846).

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[1] M. Tosi, *East and West*, 1967.

[2] De Cardi 1965, pp. 93-123.

[3] D A E. Garrod, *Tools, Man and Environment*, (Cambridge, 1946).

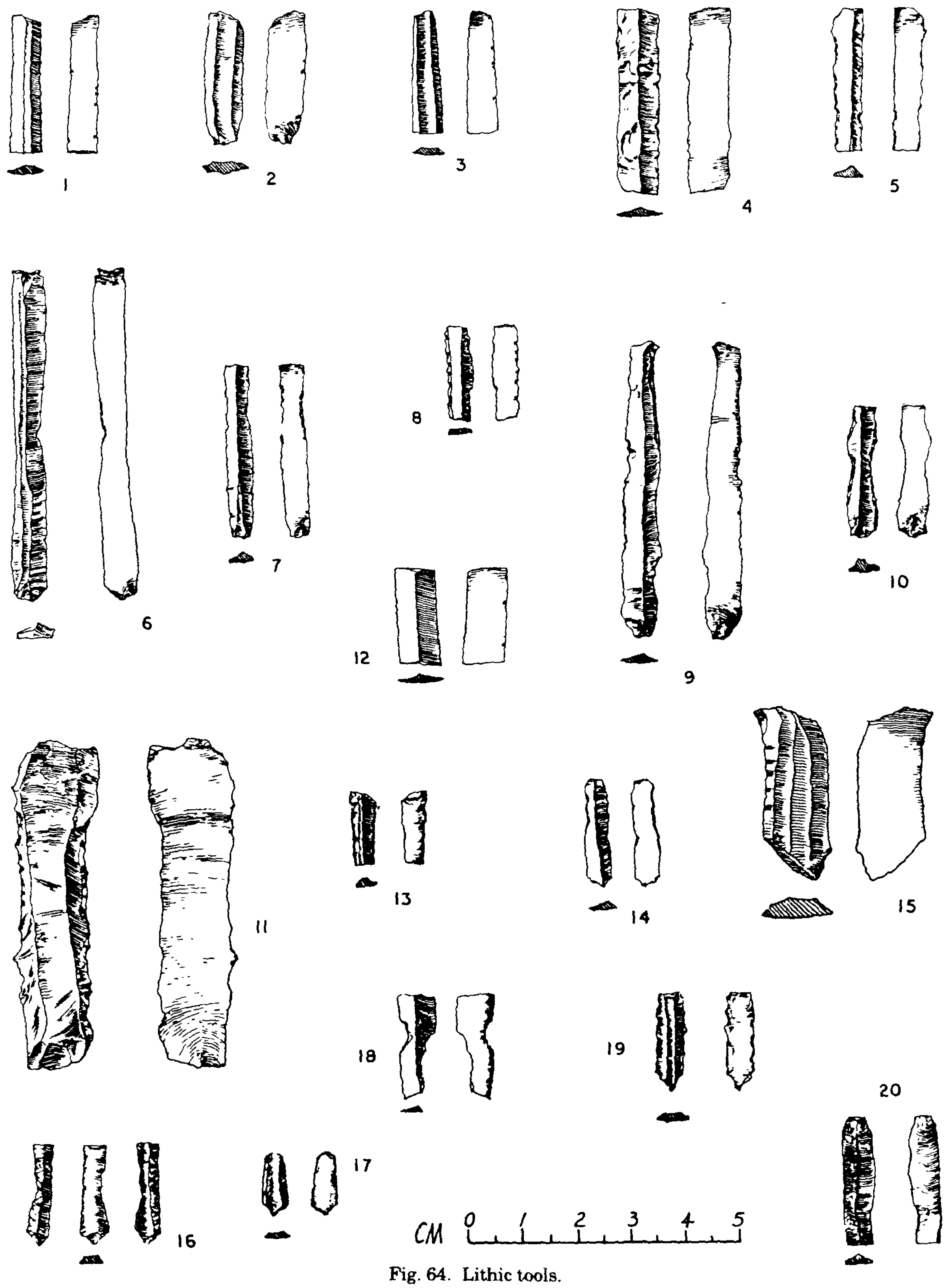


Fig. 64. Lithic tools.

3. Chert brown thin parallel sided blade. Both ends are truncated, both margins are sharp and unretouched. Battered due to use. Trapezoidal section. Size 4.50 x 1.00 cm. From a late level of the Period I A (SKTD-235).

4. Chert banded, buff wide parallel sided long retouched blade. Both ends are truncated; both sides are retouched but one is partially grounded, may be as the result of use. Triangular section. Size 6.5 1.75cm. From a late level of Period I A (SKTD-129).

5. Chert brownish grey parallel sided blade (serrated). Both ends are truncated, one margin is steeply retouched giving deep serrations, other is closely but shallow retouched. Triangular section. Size 5.50 x 1.00 cm. From a late level of Period I A (SKTD-1659).

6. Chert brown ribbon flake. Parallel sided blade. Blunt on both edges, indicative of use. Bulb and platform are visible. Can be operated by hand. Trapezoidal in section. Size 11.50 x 1.50 cm. From a mid level of Period I A (SKTD-240).

7. Chert buff narrow parallel sided blade (single-side retouched blade). Bulbar scar and platform are visible on one side. It is minutely retouched with deep percussions. Other side is sharp. Triangular section. Size 6.00 x 1.00 cm. From surface (SKTD-454 A).

8. Chert brown short parallel sided blade; it is steeply retouched on both edges. With a little deep retouching a short shoulder has been made. Both ends are truncated. Trapezodial in section. Shouldering made for hafting. Size 3.50 x 1.00 cm. From a late level of Period I A (SKTD-709).

9. Chert brown parallel sided blade on a fresh ribbon flake. One side retains a sharp cuttings edge while another is damaged in use. Bulb is visible. Can be operated by hand. Triangular in section. Size 11 x 1.50 cm. From a mid level of Period I A (SKTD-540).

10. Chert buff narrow parallel sided blade (tanged blade). Bulb is removed; platform is visible, one end is truncated; both margins are highly retouched. At the truncated end an incipient tang is obtained by shallow notching on both margins for hafting. Triangular section. Size 4.50 x 1.00 cm. From Surface (SKTD-454 B).

11. Chert grey typical long, parallel sided knife. Both cutting sides are retouched. A hold is prepared at the opposite end of the bulbar point by grinding the upper surface. This 12 cm long tool can easily be operated by hand. Bulb is visible. Trapezoidal in section. Size 12 x 2.75 cm. From a late level of Period I A (SKTD-548).

12. Chert brown thin broad parallel sided blade (typical ribbon flake blade). Its both ends are truncated; both margins, battered by use, are sharp. Triangular section. Size 3.50 x 1.50 cm. From a late level of Period I B (SKTD-1056).

13. Chert brown patinated, short parallel sided blade (rare poker). Its both ends are truncated; lower-half of margins opposite the poker tip is grounded for hafting. Upper half is retouched but smoothened due to use. Tangential poker tip is obtained by a vertical transverse flaking at the distal end and subsequently retouched. Trapezoidal section. Size 3.75 x 1.00 cm. From an early level of Period I C (SKTD-1296).

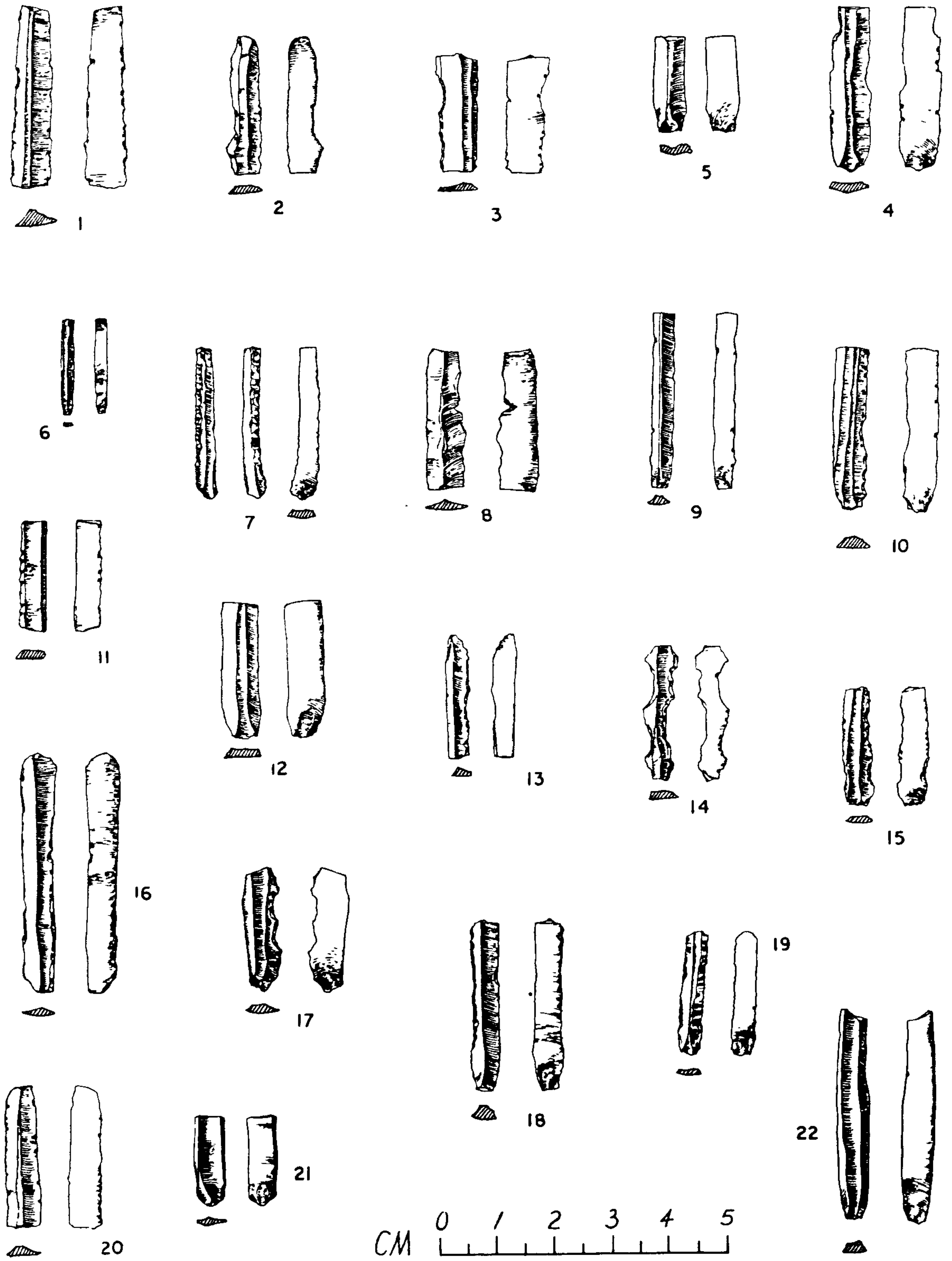


Fig. 65. Lithic tools.

14. Chert brown narrow parallel sided blade (engraver). It is turncated at both ends. One end has deep pronounced flaking; it has a short but sharp tip formed on the opposite end. By grinding a narrow incipient tang is formed for hafting. Used as a tool. Triangular in section. Size 4.00 x 1.00 cm. From a late level of Period I A (SKTD-1538).

15. Chert brown short parallel sided blade (double pointed borer). Both ends are diagonally truncated resulting into a sharp borer point. Body sides are blunted. Trapezoidal section. Size 4.00 x 1.50 cm. From an early level of Period I B (SKTD-1341).

16. Chert grey thick parallel sided blade (engraver). Both ends are truncated; one margin is retouched steeply and at the centre of this margin a notch is made for hafting by deep secondary percussions. Engraver tip is obtained by transverse, secondary, deep flaking while subsequently retouched. Use marks are visible on the vertical side of the tip. Trapezoidal in section. Size 4.00 x 1.00 cm. From an early level of Period I B (SKTD-303 B).

17. Chert ashy grey short parallel sided blade (engraver). One end is truncated; distal end is showing the bulb and platform. A pointed engraving tip is obtained by secondary transverse notching at the truncated end; one side and engraving tip are retouched. Depression at the bulbar end shows the hafting hold. Trapezoidal in section. Size 2.50 x 1.50 cm. From an early level of Period I B (SKTD-303 A).

18. Chert grey short parallel sided blade (rare sickle type). Both ends are truncated; one margin is so deeply notched that it is 0.75 cm. deep producing a gouge edge. Subsequently it is retouched; diametrically opposite to this is a similar notching of same depth made on the other margin to produce a tang for hafting; thus a sickle shaped haftable tool is produced. Sickle edge shows signs of use; its opposite edge is sharp. Triangular in section. Size 4.00 x 1.50 cm. From a late level of Period I A (SKTD-1530).

19. Chert grey parallel sided blade (engraver). It is truncated at both ends; both margins are retouched; deep percussion is seen on one margin. An engraving tip is produced at the distal end by notching. Engraving tip is also retouched. Trapezoidal in section. Size 4.00 x 1.50 cm. From a mid level of Period I A (SKTD-1628).

20. Chert buff narrow parallel sided blade (shouldered blade), with bulb and platform on one and truncation on the other end; both margins are blunted. A short incipient shoulder is produced at the truncated end by deep abrasions on side of one margin, where shoulder is distinct. Triangular in section. Size 4.50 x 1.00 cm. From a mid level of the Period I C (SKTD-62).

Fig. 65; Pl. XLIII

1. Chert brown parallel sided blade. Both edges retouched; both ends are truncated and ground. Use marks are visible; trapezoidal in section. Size 6.5 x 1.75 cm. From a mid level of Period I A (SKTD-565).

2. Chert brown parallel sided blade (shouldered penknife blade). It is truncated at both ends, one margin is retouched and on the other convex notching is done to produce the shoulder for hafting; at distal end an incipient penknife tip is produced by retouching. Size 5.00 x 1.00 cm. From a late level of Period I C (SKTD-1935).

3. Chert grey broad parallel sided blade (single side retouched blade). Both ends are truncated; one margin is retouched steeply and also a notch is made probably for gouging; it has a fresh cutting edge. Other margin unretouched. Trapezoidal in section. Size 8.50 x 1.50 cm. From a late level of Period I B (SKTD-81).

4. Cherts tan brown broad parallel sided blade (shouldered). Its upper-half is minutely retouched; one end is truncated. Its has a prominent bulb and visible platform. The truncated shoulder for hafting is obtained by notching on one margin which is meticulously retouched. Trapezoidal in section. Size 6.00 x 1.50 cm. From a mid level of Period I A (SKTD-227).

5. Chert brown short parallel sided blade. It is truncated at one end; both bulb and platform are visible. One edge is blunted. Triangular in section. Size 4.00 x 1.50 cm. From a mid level of the Period I B (SKTD-90).

6. Chert tan grey This is a narrow and thinnest bulb blade with round platform. Both margins are sharp and retouched. Trapezoidal in section. Size 3.50 x 0.50 cm. From a mid level of the Period I C (SKTF-54).

7. Chert grey thick long parallel sided spatulated blade with close retouching on both margins; at the bulbar end spatulate scraper tip is produced by retouching and removing its platform; bulb is visible. One end is truncated. Trapezoidal in section. Size 5.00 x 1.00 cm. From a late level of Period I B (SKTD-1473).

8. Chert grey parallel sided blade. Both ends are truncated, with prominent mid-ridges; one margin is damaged; other is sharp without retouching. Triangular in section. Size 5.00 x 1.50 cm. From a mid level of Period I B (SKTD-376).

9. Chert buff long narrow parallel sided blade (with filed edges). Bulb and platform are retained. One end is truncated. Both edges are filed or smoothened by use. Triangular section. Size 6.25 x 1.00 cm. From a mid-level of Period I C (SKTD-377).

10. Chert brown grey bonded parallel sided blade; bulb and platform are retained. One margin is steeply retouched while at the centre of the cutting edge a deep secondary flaking has resulted in a gouge. Trapezoidal in section. Size 5.50 x 1.25 cm. From late level of Period I A (SKTD-1274).

11. Chert buff narrow parallel sided blade (serrated). Both ends are truncated. One margin is blunted, on the other a serrated cutting edge is made by deep retouching. Trapezoidal section. Size 4.00 x 1.00 cm. From a mid level of Period I A (SKTD-150).

12. Chert grey parallel sided blade. Bulbar scar and platform are visible; both margins are battered due to use. One end is truncated. Trapezoidal section. Size 5.00 x 1.50 cm. From a late level of Period I A (SKTD-767).

13. Chert brown parallel sided blade (penknife). It is truncated at both ends; one side is blunted; another side is retouched and at distal end, a convex point has been made by striking an oblique flake. Triangular in section. Size 4.50 x 1.50 cm. From an early level of Period I B (SKTD-1485).

14. Chert grey short parallel sided blade. It is made deep by vertical retouching amounting to notching; both ends are truncated; thus it is a fine saw-edged tool, triangular in section. Size 4.50 x 1.00 cm. From an early level of Period I A (SKTD-1388).

15. Chert tan brown parallel sided blade. Its both ends are truncated, one having a sharp unretouched margin and on the other broad. Secondary flaking has given broad serration, which has been subsequently retouched. At the bulbar end a small parallel notching shows the hafting end. Trapezoidal section. Size 5.00 x 1.00 cm. From a late level of Period I A (SKTD-1643).

16. Chert brown ribbon flake, parallel sided blade. Both cutting edges are retouched and blunted due to use. No bulb or platform is visible. Trapezoidal in section. Thinning at the bulbar end appears to be made for hafting. Size 8.5 x 1.50 cm. From a late level of Period I A (SKTD-2069).

17. Chert brown parallel sided blade (saw-edged). At distal end bulbar scar and truncated platform are seen. One sharp margin is unretouched, other margin is having zigzag cutting edge produced by a steep secondary flaking and subsequently retouched, giving a broad saw-edged tool. One margin near the bulb is convex. Trapezoidal in section. Edge provided by grinding. Size 3.25 x 1.50 cm. From a late level of Period I A (SKTD-1387).

18. Chert brown parallel sided blade (serrated blade). It is truncated at one end; bulb and platform are visible at distal end; both margins are minutely retouched to produce serration. Trapezoidal in section. Size 4.50 x 1.00 cm. From a late level of Period I A (SKTD-229).

19. Chert grey parallel sided blade (serrated blade). It is truncated at one end; bulb and platform are visible at the distal end; both margins are minutely retouched to produce serration. Trapezoidal in section. Size 4.50 x 1.00 cm. From a late level of Period I A (SKTD-229).

20. Chert grey patinated: Parallel sided blade. Its both ends are truncated. One edge sharp but unretouched; the other is smoothened by use. Use marks are visible on ventral side. Trapezoidal in section. Size 5.00 x 1.20 cm. From an early level of Period I B (SKTD-637).

21. Chert grey parallel sided blade. It is truncated at one end; bulb and platform are visible; patination is visible; sides are blunted by use. Trapezoidal in section. Size 3.50 x 1.50 cm. From a mid level of the Period I B (SKTD-214).

22. Chert tan brown parallel sided, long blunted blade. Bulb and platform are visible at distal ends; both margins are ground for blunting; one end is truncated; trapezoidal in section. Size 7.5 x 1.25 cm. From an early level of Period I C (SKTD-379).

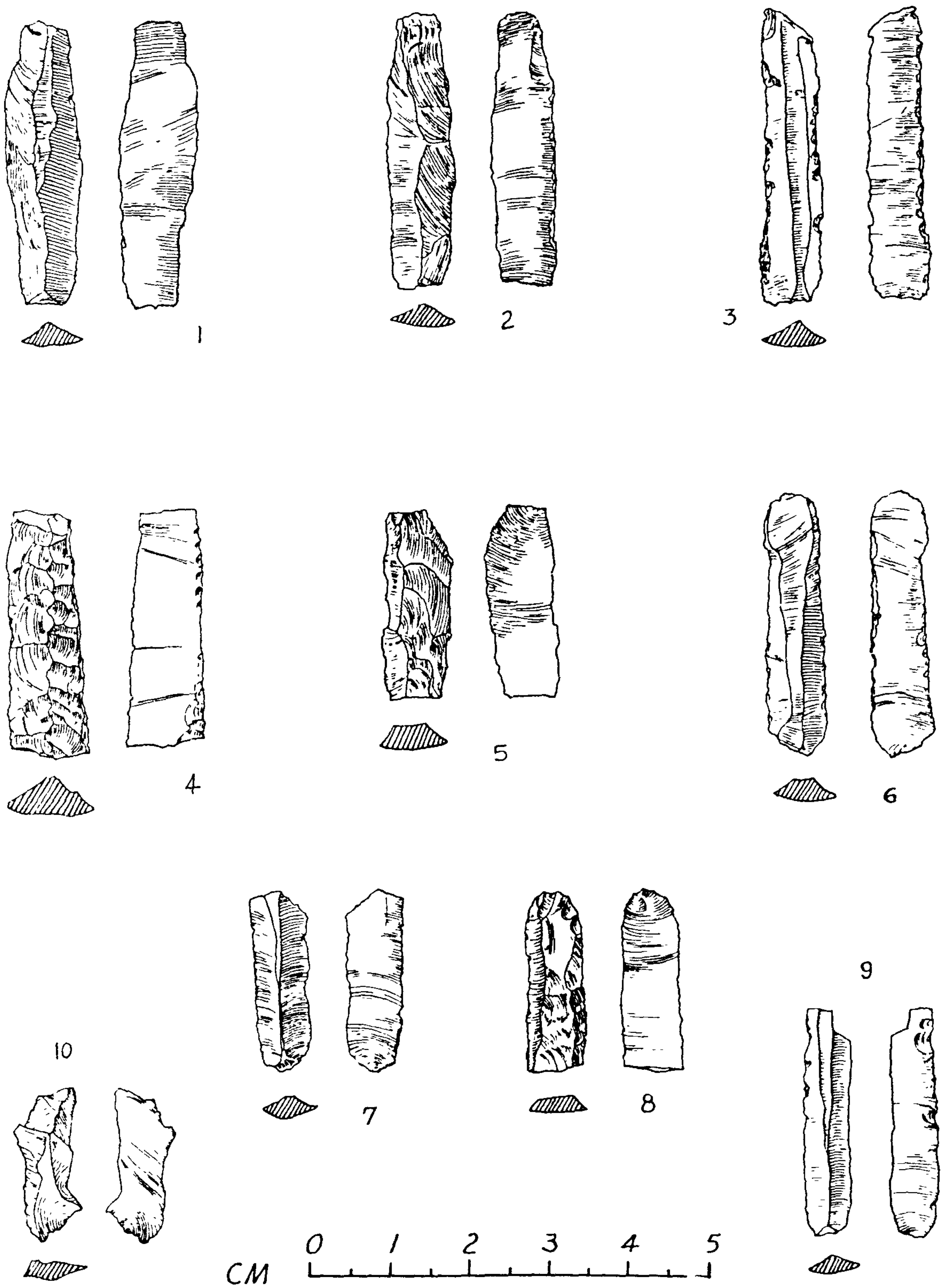


Fig. 66. Lithic tools.

(2) Jasper, Carnelian, Chalcedony Cores and Blades

As seen in all Harappan sites of Gujarat, like Lothal and Rangpur, at Surkotada too, the people have taken to exploit locally available amygdaloidal nodules of different varieties of crystalline quartz-like chalcedony, carnelian, jasper, milky quartz, etc. for preparing tiny stone tools. This has largely happened in the last phase of the Surkotada habitat, i.e., in Period I C. However, this industry of semiprecious stones is from the mid level of Period I B. That the technique and types did not change becomes evident from the tools and cores described below. This is a common feature in late levels of the above mentioned Harappan sites of Gujarat.

The incidence of Cores, Blades and Flakes is as below:

Period	Cores	Flakes	Blades	
I C	51	44	70	
I B	7	16	24	
Total:	58	60	94	= 212

(i) Blades

Fig. 66; Pl. XLIV

1. Chalcedony translucent long parallel sided blade resulting out of the crested ridge technique. Bulbar tip is truncated: at the other end an incipient tang is produced by retouching. One margin is retouched by steep flaking; other margin is sharp. Triangular section. Size 5.00 x 1.25 cm. From the mid level of Period I C (SKTD-1734 B).

2. Carnelian opaque lightened, parallel sided blade. It is truncated at both ends. One end is thinned meticulously by horizontal flaking to produce tang for hafting; the other has a tip and one margin is retouched to be used as scaper. Triangular in section. Size 4 x 1.00 cm. From a mid level of Period I B (SKTD-1322).

3. Chalcedony translucent same as No.8 (below) except this is broken. Size 3.5 x 1.00 cm. From a mid level of Period I C (SKTD-1734 C).

4. Chalcedony translucent this is a fine specimen of the crested ridge technique leaving alternate negative flake scars on the mid-ridge; both ends are truncated. One margin is retouched steeply and blunted by use. Thick triangular section. Size 4.25 x 1.50 cm. From an early level of Period I C (SKTD-194).

5. Chalcedony translucent long parallel sided blade. It is spatulated at the bulbar end by secondary flaking; margins are damaged. At distal end fine hold is formed for handling by horizontal flaking. May be used as an end scraper. Trapezoidal in section. Size 5.25 x 1.25 cm. From a mid level of Period I C (SKTD-1734 D).

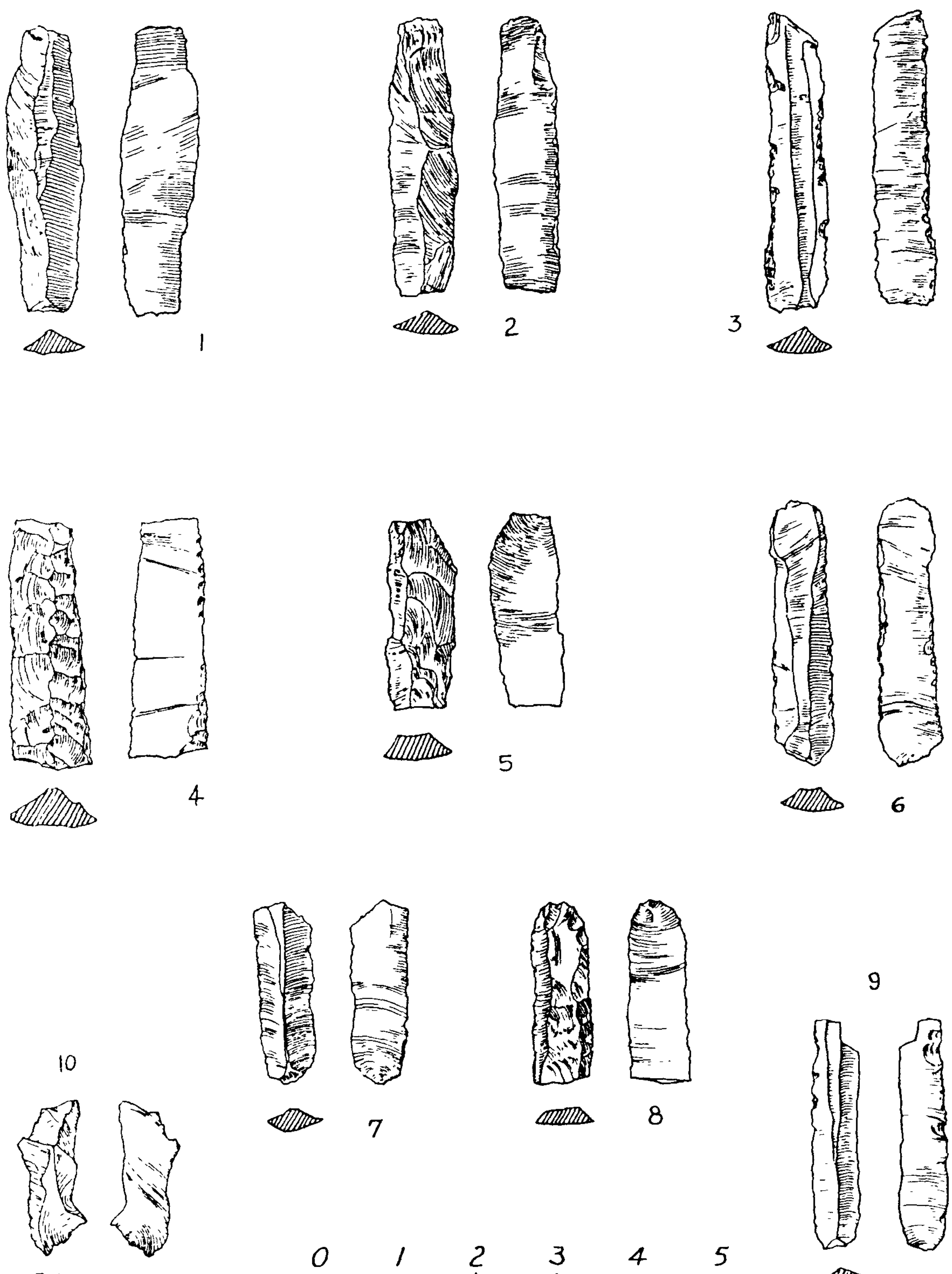


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Fig. 66; Pl. XLIV

1. Chalcedony translucent long parallel sided blade resulting out of the crested ridge technique. Bulbar tip is truncated: at the other end an incipient tang is produced by retouching. One margin is retouched by steep flaking; other margin is sharp. Triangular section. Size 5.00 x 1.25 cm. From the mid level of Period I C (SKTD-1734 B).

2. Carnelian opaque lightened, parallel sided blade. It is truncated at both ends. One end is thinned meticulously by horizontal flaking to produce tang for hafting; the other has a tip and one margin is retouched to be used as scaper. Triangular in section. Size 4 x 1.00 cm. From a mid level of Period I B (SKTD-1322).

3. Chalcedony translucent same as No.8 (below) except this is broken. Size 3.5 x 1.00 cm. From a mid level of Period I C (SKTD-1734 C).

4. Chalcedony translucent this is a fine specimen of the crested ridge technique leaving alternate negative flake scars on the mid-ridge; both ends are truncated. One margin is retouched steeply and blunted by use. Thick triangular section. Size 4.25 x 1.50 cm. From an early level of Period I C (SKTD-194).

5. Chalcedony translucent long parallel sided blade. It is spatulated at the bulbar end by secondary flaking; margins are damaged. At distal end fine hold is formed for handling by horizontal flaking. May be used as an end scraper. Trapezoidal in section. Size 5.25 x 1.25 cm. From a mid level of Period I C (SKTD-1734 D).



Fig. 67. Lithic tools.

6. Chalcedony translucent long, narrow, parallel sided blade. Both ends are truncated; one end is made piercing sharp by diagonal cuts and retouched from the opposite end: one margin is deeply retouched. Triangular in section. Size 5 x 1.25 cm. From mid level of Period I C (SKTD-1771).

7. Chalcedony white translucent narrow parallel sided blade. One edge is truncated, bulb and platform are visible; one margin is damaged. No retouch. Triangular in section. Size 3.00 x 1.00 cm. From the mid level of Period I C (SKTD-1786 A).

8. Carnelian translucent parallel sided blade. One margin is produced by steep retouching. Trapezoidal section. Size 2.75 x 1.25 cm. From the mid level of Period I C (SKTD-1786 C).

9. Chalcedony translucent narrow parallel sided blade. Both ends are truncated. Tang is provided by notching at one end: one margin is damaged: the other sharp; bulbar tip is ground: Triangular in section. Size 4.25 x 1.00 cm. From the mid level of Period I C (SKTD-1734 A).

10. Chalcedony white translucent rejected blade flake with prominent bulb and visible platform. Triangular in section. Size 2.75 x 1.00 cm. From mid level of the Period I C (SKTD-1786 B).

(ii) Cores

Fig. 67; Pl. XLV

1. Chalcedony patinated one negative flake scar measuring 5.5 cm. Rejuvenated core is turned into a side scraper by retouching one margin. Hold is created by shallow flaking on the left cortex. Cortex retained on both sides. From a late level of Period I B (SKTD-1927).

2. Chalcedony translucent five negative flake scars indicate the removal of 4.50 cm. long blades. Striking platforms are visible. Attempt of removal of left cortex is incomplete as only tiny flakes are detached. Fluted core. From a late level of Period I B. (SKTD-2275 A).

3. Chert brown fluted core having eight narrow flake scars, average of 01.2 cm. each running throughout. Visible striking platform. Blunted tip indicates use as burnisher. From the mid-level of Period I C (SKTD-602).

4. Agate smoky grey translucent short cylindrical core with fluting on one side showing four tiny negative flake scars of about 1.25 cm length. Platform is visible. No rejuvenation is seen. From the late level of Period I C (SKTD-1858).

5. Milky quartz opaque thick cylindrical core, with two flat striking platforms. Attempts at fluting appear to have failed, except for two tiny blades which were taken out. Natural hard incrustation appears to be the hurdle in fluting. From the late level of Period I B (SKTD-57).

6. Carnelian translucent red short triangular fluted cortex with the core left on one side; four tiny narrow negative flake scars of about 1.5 cm are visible; striking platform visible; other end is rejuvenated into a borer tip by vertical secondary flaking. From an early level of Period I C (SKTD-1099).

7. Chalcedony opaque exhausted fluted core is rejuvenated into end-scraper by utilising the serrated age resulting out of fluting at the broader end. Four tiny bladelets of about 21.5 mm are seen. Signs of use are visible. Secondary flaking at the other end on the ventral side has given a triangular hold. Five negative flake scars are visible. From a mid level of Period I B (SKTD-2275 B).

8. Chalcedony half-translucent and half-transparent fluted core is showing five narrow flake scars of 4 cm. length on one side and crested negative ridge rib on the other. Rejuvenated by secondary working on the striking platform as end scraper. From a late level of Period I C (SKTD-2236).

9. Jasper green short cylindrical core showing ten negative narrow flake scars of about 1.8 cm on all sides. Striking platform is visible. From the mid level of Period I C (SKTD-625).

10. Chalcedony translucent white. Short conical fluted core is fully exhausted with five narrow negative flake scars of about 3.5 cm on one side and a short negative scar with a ridge on the other. Both the thin edges are rejuvenated into scraping edges by retouching. Bifacial sidescraper. From an early level of Period I C (SKTD-2210).

11. Chalcedony white translucent. Short thin triangular fluted core showing a platform and nine short narrow negative flake scars of about 3.5 cm all around. Rejuvenated into a nose-scraper by taking a steep secondary flaking at the broader end. From a late level of Period I C (SKTD-2236 B).

B. COPPER/ BRONZE OBJECTS

The excavation at Surkotada has yielded one hundred and twenty nine copper objects besides a hoard containing beads and bangles (Pl. XLVI) from different subperiods. The indeterminate pieces out of this are about fifty. The diagnostic tool types of the Harappans available at Surkotada in different subperiods are:

1. simple blade and crescent-shaped blades,
2. long or short chisels with a rectangular sectioned tang and narrow blade,
3. arrowhead with backward projecting barbs,
4. knives with a thin leaf-shaped blade,
5. drill,
6. spearheads or lanceheads with a tang,

7. fragment of a lid with raised edges,
8. a fragment of a socketed axe, and
9. a fishhook.

Besides the above, celts or blade axes, antimony rods, bangles, rings, foil used probably as ear-ornament, hooks, chains and other small unidentifiable bits of copper are also available. As usual with the Harappan copper tool typology, the knives, arrow heads, spear heads or lance heads (?) are very thin. One fish hook could also be available in the present excavations. The remarkable objects are a celt or blade axe, a big chisel for dressing of stones, a drill for piercing the steatite beads from Period I C and also a portion of the socketed axe. Generally, the antimony rods, bangles, and rings have circular sections.

The entire assemblage is very typical and has parallels in Harappa, Mohenjo-daro, Chanhudaro, Kalibangan, Lothal and Rangpur[1].

The availability of fragments of a crucible suggests local smelting of copper which was perhaps being imported from Afghanistan or from Rajasthan.

The find of developed objects of copper and bronze does indicate surplus agricultural produce and urbanization and high skill of the artisans, which is itself a hallmark of the Harappans.

The periodwise incidence of copper and bronze objects is tabulated below:

	Period		
	IA	IB	IC
Pieces and Lumps	23	8	29
Bangles	5	1	8
Rings	4	3	13
Celts	nil	1	nil
Chisels	nil	nil	3
Arrowheads	1 (fragment)	1	2
Pins	2	3	1
Chain	nil	nil	1
Needles	2	nil	nil
Lance head or Spear head	1	nil	1

[1] D.P. Agrawal, *Copper Bronze Age in India*, (Delhi, 1971), pp. 190-192.

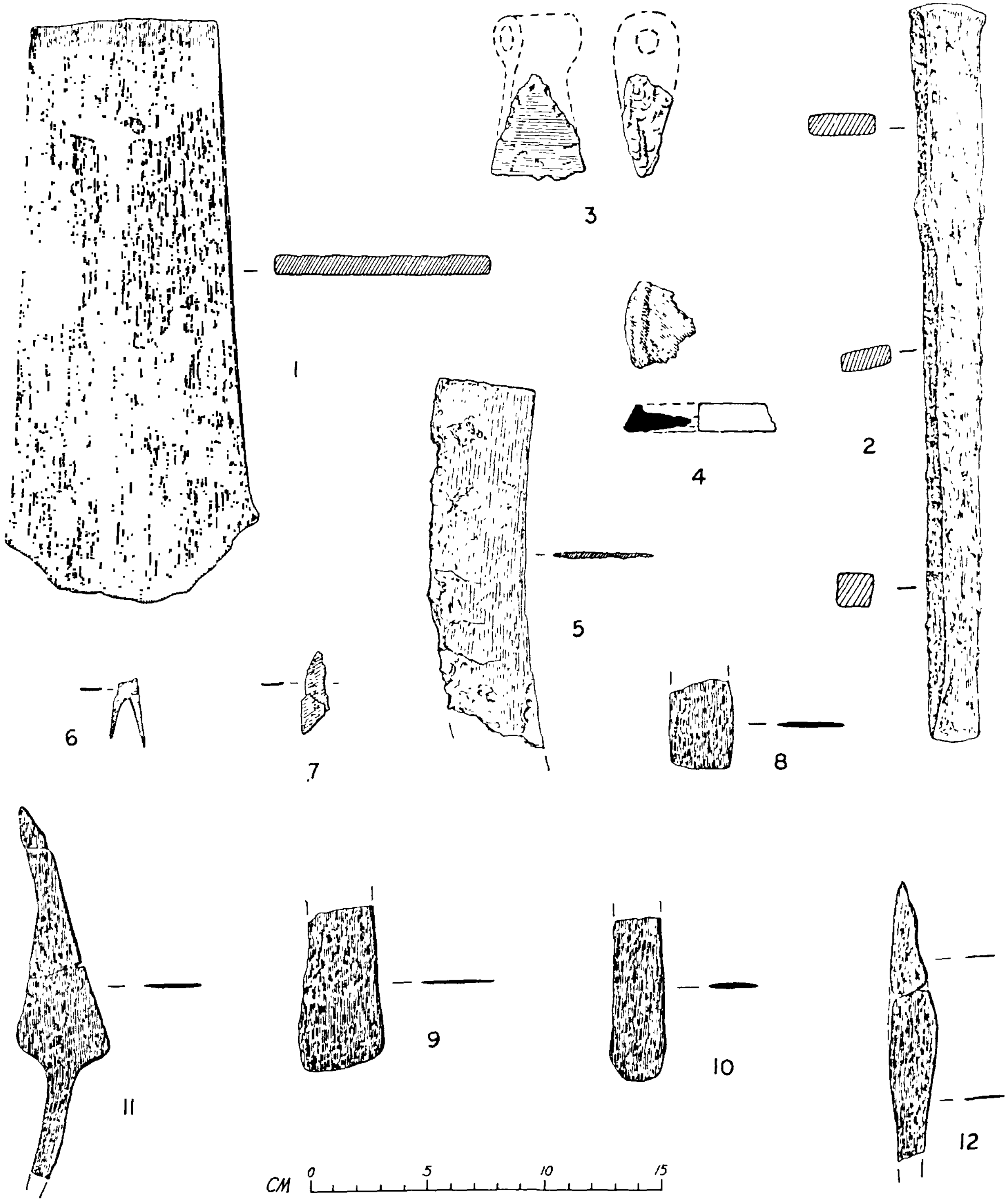


Fig. 68. Copper Objects.

Blades	nil	nil	1
Antimony rods	2	nil	5
Fishhooks	nil	nil	1
Foil	nil	nil	1
Knives/Daggers	nil	nil	2
Beads	1	nil	2+Hoards
Drill	nil	nil	1
Total	41	17	71 = 129 plus Hoards of Beads and Bangles

Fig. 68; Pl. XLVII

1. Flat celt showing a rectangular section and a sharp crescentic edge. Length 24.3 cm, central width 9.3 cm, thickness 0.7 cm. From a mid-level of Period I B (SKTD-215 A).[1]

2. Chisel having a sharp double sloped edge, squarish in section with a rectangular tang of length 30.5 cm, width 1.7 cm in the lower end and 2.7 cm in the upper. From the mid level of Period I C (SKTD-488)[2].

3. Fragment of an axe, probably socketed, having a sharp edge measuring 4 cm. From the mid level of Period I C (SKTD-1983)[3].

4. Fragment of a copper dish having raised rim. Diameter 12 cm. From an early level of Period I C (SKTD-1209)[4].

5. A long flat curved blade. Length 15 cm, width 4.1 cm, thickness 0.2 cm. From an early level of Period I A (SKTD-238).

6. Arrowhead fragment with two barbs projecting backward. Available length 3 cm. From a late level of the Period I C (SKTD-855)[5].

7. Fragment of an arrowhead. Length 3.5 cm, width 1.3 cm. From a late level of Period I C (SKTD-817).

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[1] Marshall:1931, Pl. CXXXIX, 3; Vats:1940, Pl. XXIII.1 and 2; Mackay:1938, Pls. LXXIV -11, LXXI.6.

[2] *ibid.*, Pl.XIV.5. 'this type of chisel appears to be peculiar to Indus Valley Culture', p.473.

[3] Vats:1940, Pl. LXXII.18; Mackay:1937, Pl. LXII.25.

[4] Vats:1940, Pl. CXXIV.32.

[5] Marshall:1931, Pl. CXLIII, 12; Vats:1940, Pl. CXXV, 13, 14; Mackay:1937, Pl. LXII, 25 (from Jhukar), Pl. CXX 27 (from Mohenjo-daro); also available at Mundigak III.

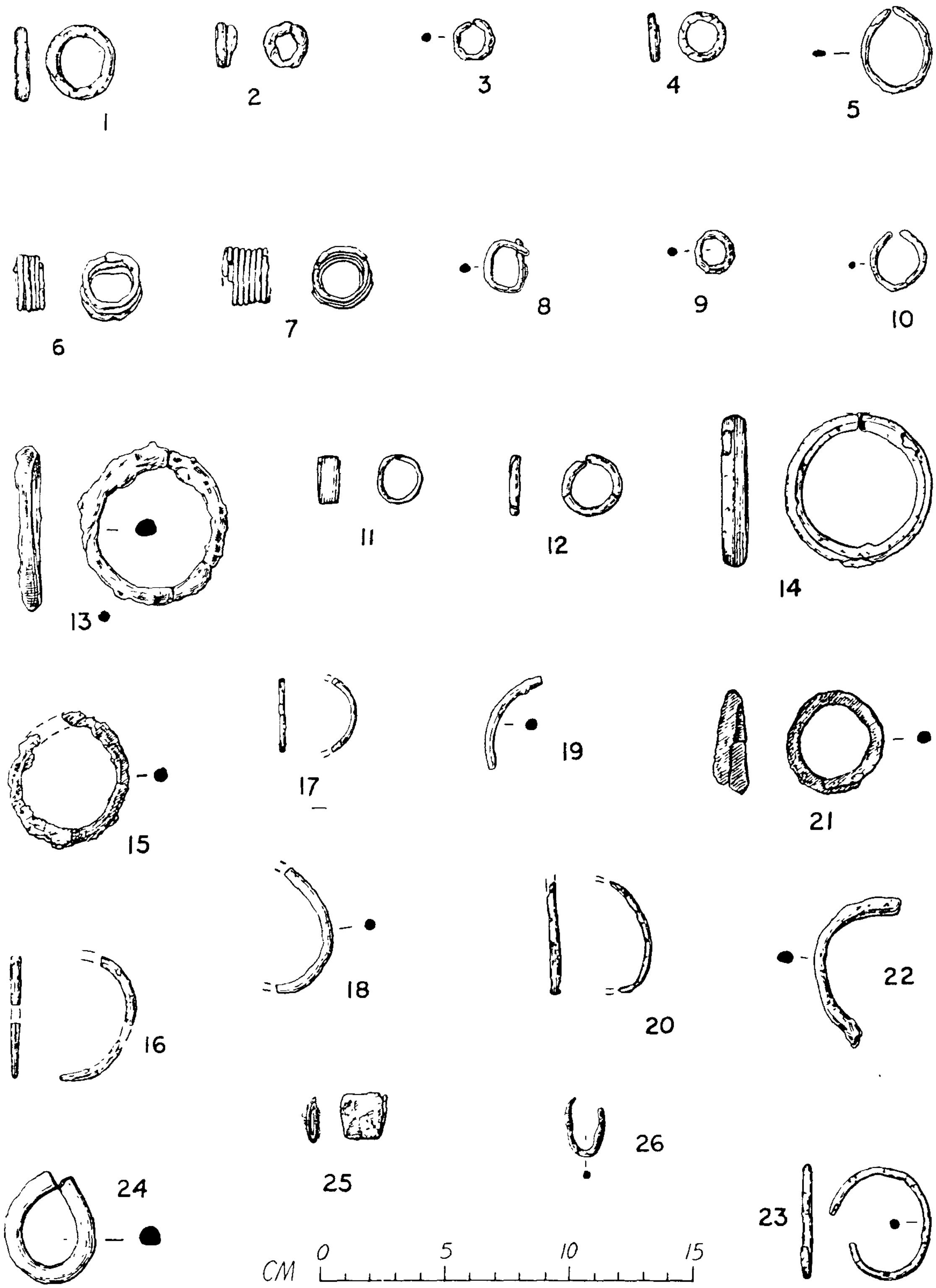


Fig. 69. Copper Objects

8. Fragment of a blade; length 3.8 cm, width 2.9 cm, thickness 0.3 cm From a late level of Period I C (SKTD-1785).

9. Fragment of a flat blade; length 7 cm, central width 3.2 cm. From a late level of Period I C (SKTD-2123).

10. Flat blade; length 6.8 cm, width 2.2 cm. From a late level of Period I C (SKTD-2123).

11. Lancehead (?) with a curved end; length 10.5 cm, width 2 cm, thickness 1 cm. From an early level of Period I A (SKTD-2128)[1].

12. A knife or a leather cutter; length 11.5 cm, width 2 cm, thickness 0.92 cm. From a late level of Period I B (SKTD-335).

13. A long chisel of rectangular section. Length 18.3 cm, width 1 cm. From a mid-level of Period I C (SKTD-1867). (Not illustrated).

Fig. 69; Pl. XLVIII

1. Ring with a circular section. Diameter 3 cm. From a late level of Period I B (SKTD-538).

2. Wire ring with a circular section. Diameter 2 cm. From a late level of Period I A (SKTD-160).

3. Wire ring with a circular section. Diameter 1.9 cm. From a late level of Period I A (SKTD-760).

4. Ring with a circular section. Diameter 0.2 cm. From a late level of Period I C (SKTD-393).

5. Bangle with elliptical section. Diameter 3 cm. From a late level of Period I C (SKTD-1870).

6. Coiled ring with a circular section. Diameter 2.4 cm. From a mid-level of Period I C (SKTD-59).

7. Coiled ring with a circular section. Diameter 2.5 cm. From a mid-level of Period I C (SKTD-1376).

8. Wire ring with a circular section. Diameter 2 cm. From a late level of the Period I A (SKTD-482).

9. Ring with a circular section. Diameter 1.8 cm. From a late level of Period I B (SKTD-2164).

10. Ring, circular in section. Diameter 2.4 cm. From a late level of Period I C (SKTD-1904).

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[1] A similar object has been described by Mackay as a large knife

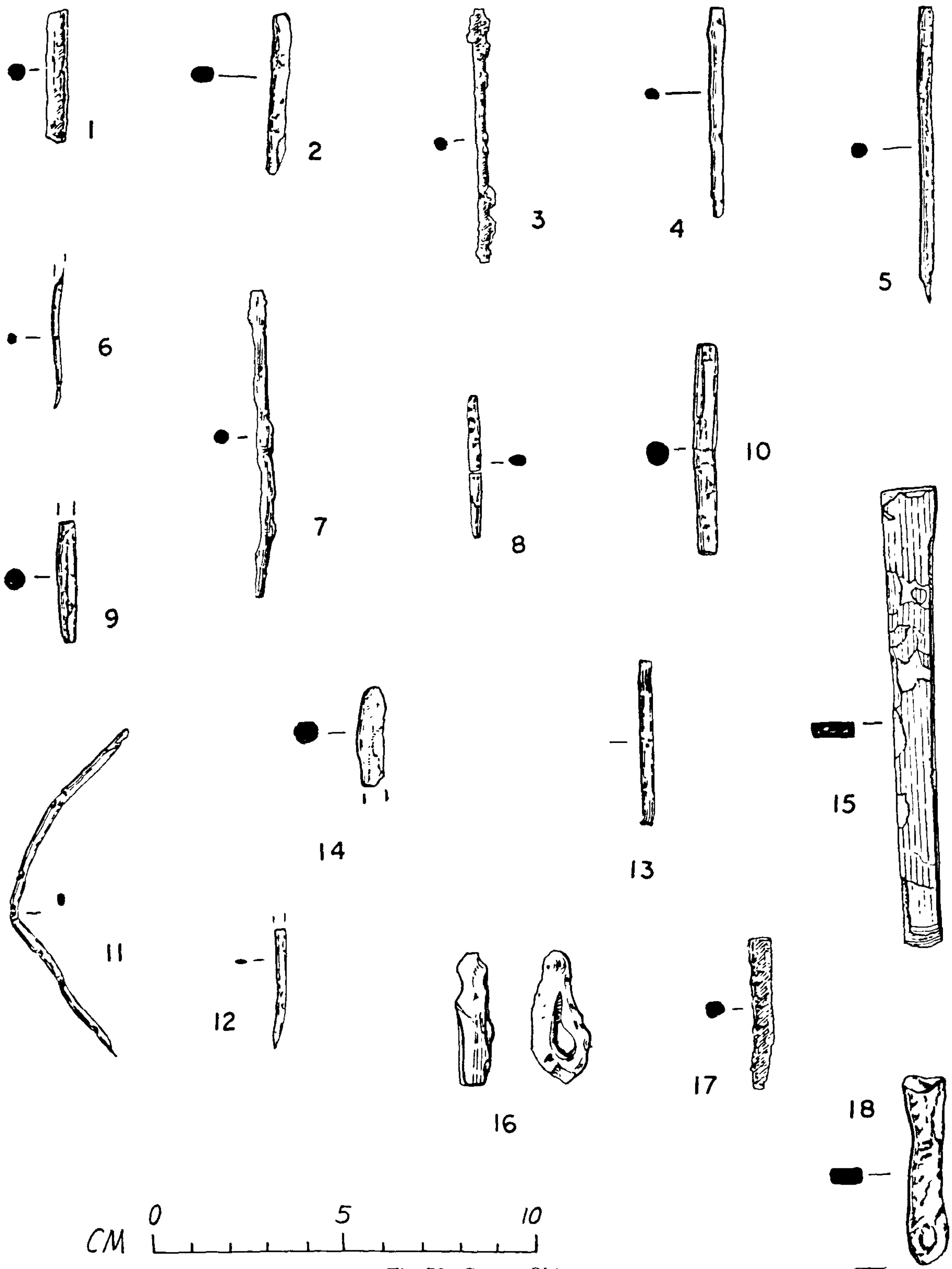


Fig. 70. Copper Objects.

11. Flat ring with a rectangular section. Diameter 1.8 cm., thickness 0.8 cm. From a late level of Period I C (SKTD-2181).

12. Ring with a circular section. Diameter 2.5 cm. From a mid-level of the Period I C (SKTD-1325).

13. Bangle with a round section. Diameter 6 cm. From a late level of Period I C (SKTD-2003).

14. Bangle with a biconvex section. Diameter 6 cm. From a late level of Period I C (SKTD-832).

15. Bangle with a round section. Diameter 4.8 cm. From a late level of Period I C (SKTD-1996).

16. Fragment of a thin bangle with a round section. Diameter 5.5 cm. From an early level of Period I A (SKTD-536).

17. Fragment of a thin bangle with a round section. Diameter 3.4 cm. From a late level of Period I B (SKTD-160).

18. Fragment of a thin bangle with a round section. Probable diameter 4.5 cm. From a late level of Period I B (SKTD-2094).

19. Fragment of a bangle round in section. From the mid-level of Period I A (SKTD-562).

20. Fragment of a bangle; elliptical in section. From an early level of Period I A (SKTD-122).

21. Bangle with a round section. Diameter 4 cm. From a late level of Period I B (SKTD-538).

22. Fragment of a bangle elliptical in a section. From an early level of Period I C (SKTD-765).

23. Bangle with a round section. Diameter 4 cm. From a mid-level of Period I C (SKTD-148).

24. Bangle with a round section. Diameter 3.5 cm. From a late level of Period I C (SKTD-1864).

25. Coiled flat foil. Length 1.8 cm, width 2 cm. From a mid-level of Period I A (SKTD-772).

26. Fishhook with a round section. From a late level of Period I C (SKTD-803)[1].

Fig. 70; Pl. XLIX

1. Fragment of a rod, round in section; length 3.4 cm. From a late level of Period I C (SKTD-788).

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[1] Vats:1940, Pl. CXXV, 8; Marshall:1931, Pls. CXLIII, 24,25; Mackay:1937, Pls. CXIV,6., CXXXI. 11, 14, 24; Rao:1956-57, p.86.

2. Fragment of an antimony rod, elliptical in section. Length 4 cm. From a late level of Period I C (SKTD-2171).

3. Antimony rod, round in section, length 6.5 cm. From a late level of Period I A (SKTD-1578).

4. Antimony rod, round in section, length 5.3 cm. From a late level of Period I C (SKTD-752).

5. A drill with a round section and a pointed pin-end while the other end is having a rectangular section. Length 7.5 cm. From an early level of Period I C (SKTD-192)[1].

6. Thin needle with a round section. Length 3.6 cm. From a late level of period I B (SKTD-367).

7. Antimony rod, round in section. Length 9 cm. From a late level of Period I A (SKTD-762).

8. Fragment (2) of a rod, elliptical in section. Length 3.6 cm. From a late level of Period I B (SKTD-374).

9. Fragment of a rod, round in section. Length 3.1 cm. From a mid-level of the Period I C (SKTD-488).

10. Rod; circular in section, length 5.5 cm. From a late level of Period I B (SKTD-124).

11. A twisted antimony rod; elliptical in section. Length, 10 cm. From a mid-level of Period I C (SKTD-453).

12. Needle; elliptical in section. Length 3 cm. From a mid-level of Period I A (SKTD-411).

13. Fragment of a flat antimony rod with an elliptical section. Length 4.5 cm. From a late level of Period I C (SKTD-59).

14. Fragment of a rod, round in section. Length 2.6 cm. From a late level of the Period I B (SKTD-1276).

15. Flat chisel with a tapering end; rectangular in section. Length 11.8 cm, width 1 cm. From an early level of Period I C (SKTD-386).

16. Link of a chain. Length 1.5 cm. From a mid-level of Period I C (SKTD-1653).

17. Fragment of an antimony rod; round in section. Length 4 cm. From a late level of Period I C (SKTD-1939).

18. A flat piece with a rectangular section, probably a handle; length 4.7 cm, width 0.7 cm. From a mid-level of Period I C (SKTD-1391).

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[1] Mackay: Pl. LXXX from Chanhudaro; Cogen has described this find to be the earliest in the world; Rao.: 1962 p 24.

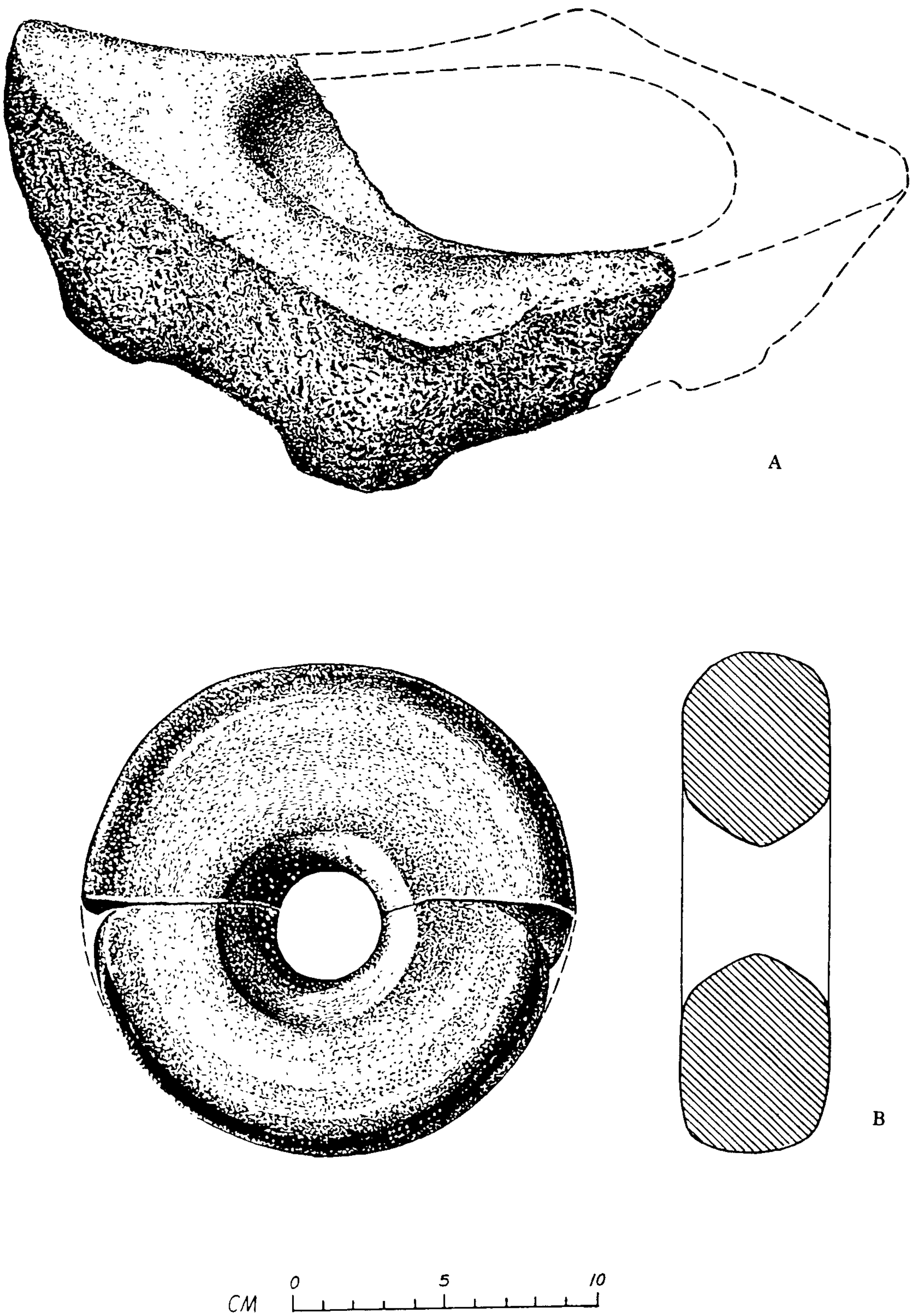


Fig. 71. Stone objects.

C. STONE OBJECTS

A large number of Stone Objects have been discovered from Surkotada. These are classified as below:

(i) Stone balls or Sling balls.

(ii) Querns.

(iii) Mace Heads.

(iv) Whet Stones and Sharpeners.

(v) Mullers and Rubbers.

Weights and measures have been dealt with elsewhere. (See *ante,* 8 H.p.)

These objects are mainly used in the domestic life of the people. The mace heads were probably used as weights for digging sticks or as a weapon. The whet stones and sharpeners and the grooved stones were used by the bead makers for giving polish to the beads.

(i) *Stone balls* or *Sling balls*

A large number of stone balls or sling balls of various sizes and weights have been found from Surkotada. An interesting fact which came to notice during the excavation is that the incidence of these balls was much more in the citadel area than in the residential annexe. Out of about 300 balls, some 220 have been found in the citadel area and the rest are recorded from the lower residential annexe. These balls were in all probability used as missiles against the enemies. Out of the large number of sling balls, keeping in view their period, size and weight, only twelve representative specimens have been selected for detailed description:

	BIG			MEDIUM			SMALL			
Period	No of Balls	Weight	Diameter	No. of Balls	Weight	Diameter	No. of Balls	Weight	Diameter	Total
IC	1	410 gm 454 gm	6 cm 4 cm	5	213 gm 68 gm	6 cm 4 cm	2	50 gm 39 gm	3.5 cm 3 cm	8
IB	2	400 gm	6.5 cm	1	136 gms	5 cm	nil	nil	nil	3
IA	nil	nil	nil	1	120 gm	5 cm	nil	nil	nil	1

Pl. L

1. Sandstone Ball; spherical, having rough pitted surface. Diameter 7 cm., weight 454 gm. From a mid-level of Period I B (SKTD-2313)[1].

[1] Similar balls have been reported from Mohenjodaro and chalcolithic levels of Prakash, Navdatoli, Ahar and Nevasa, etc and are described as weights

2. Sandstone Ball; spherical, having rough surface. Diameter 6.5 cm. weight 400 gms. From a late level of Period I B (SKTD-2314).

3. Sandstone Ball; spherical, having smooth surface. Diameter 6 cm. weight 410 gm. From a late level of the Period I C (SKTD-2315).

4. Sandstone Ball; spherical, having a rough surface. Diameter 6 cm, weight 213 gm. From a late level of Period I C (SKTD-2316).

5. Sandstone Ball; spherical, having an uneven surface. Diameter 5 cm, weight 120 gm. From a early level of Period I B (SKTD-2317).

6. Sandstone Ball; spherical, having a rough surface. Diameter 5 cm. weight 136 gm. From a mid-level of Period I A (SKTD-2318).

7. Sandstone Ball; spherical, having a rough surface broken. Diameter 5 cm. weight 147 gm. From a mid-level of Period I C (SKTD-2319).

8. Sandstone: Ball; spherical, having a rough surface. Diameter 5 cm. weight 115 gm. From a mid-level of Period I C (SKTD-2320).

9. Sandstone Ball; spherical, slightly smooth surface. Diameter 4.5 cm. weight 175 gm. From a late level of the Period I C (SKTD-1518).

10. Sandstone Ball: spherical, having slightly smooth surface. Diameter 4.3 cm. weight 68 gm. From a late level of Period I C (SKTD-577).

11. Sandstone Ball; spherical, having rough surface. Diameter 4 cm. weight 60 gm. From a mid-level of Period I C (SKTD-1045).

12. Sandstone Ball; spherical, having rough surface. Diameter 3 cm. weight 39 gm. From a late level of Period I C (SKTD-2321).

(ii) Querns

(a) Saddle Querns

Out of the fifteen saddle querns recovered from the excavations, four have been selected for detailed study. These querns, in general, are roughly rectangular in shape having a concave surface formed by constant use of the muller or grinding stone over it. It has been observed that the concavity is more on one side indicating that it was used from one side only. The lower base portions of these querns were in all probability embedded a little in the ground to have a firm level. Their distribution is as under:

Period	Saddle Querns	Legged Querns	Flat Querns	Circular Querns
I C	14	1	4	1
I B	1	nil	nil	nil
I A	nil	nil	1	nil
Total	15	1	5	1

1. Sandstone Quern; almost rectangular in shape with a concave surface which becomes deeper at the end. Size: length 36 cm, width 25 cm, thickness 14 cm. From a mid-level of the Period I C (SKTD-2322).

2. Sandstone Quern; roughly rectangular in shape with slightly convex ends, concave shallow surface, deeper on one side. Size: length 44 cm, breadth 29 cm, thickness 13 cm. From a late level of Period I C (SKTD-183).

3. Sandstone Quern; rectangular in shape with a concave surface, deeper on one side, having a flat base. Size: length 37 cm, breadth 18.5 cm, thickness 94 cm. From a late level of the Period I C (SKTD-2323).

4. Sandstone Quern; irregular in shape with a shallow concave surface, more use indicated from the broad side of the quern. Base uneven. Size 31 cm, breadth 15 cm, thickness 11 cm. From an early level of Period I B (SKTD-2324)[1].

(b) Legged Querns

This type of quern becomes very popular from the 2nd century B.C.[2] However, a few have been recorded from the Chalcolithic levels of Navadatoli and Nagda. Very rare examples have been also recorded from Mohenjo-daro. This is a rare type and its occurrence from an early level of Period I C is significant.

Fig. 71A; Pl. LI

5. Sandstone (Gritty) legged quern, only half-portion with convex ends and deep concave surface having two short incipient legs on the other side. One end protrudes beyond the axis of the legs. Lower surface is dressed. Available size: length 18 cm, width 19 cm, thickness 8.5 cm. From an early level of Period I C (SKTD-166).

(c) Querns with flat surface

Five flat surfaced querns, oval or rectangular in shape, have been recovered from Surkotada. The upper surface of the querns is flat and traces of pock marks are noticed. The lower side of these is uneven and have a convex base. The illustrated specimens are described as below:

Pl. LII

1. Sandstone Quern; ovoid in shape with flat surface and convex base. Size: length 21 cm, width 16 cm, thickness 8.5 cm. From the late level of Period I C (SKTD-2325).

2. Sandstone Quern; ovoid in shape with flat surface and convex base. Size: length 23 cm, width 16.5 cm, thickness 9 cm. From the late level of Period I C (SKTD-2326).

3. Sandstone Quern; roughly rectangular in shape with a flat surface and a flattish

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[1] Mackay: 1938 Pls. CVIII, 31, 32, CIV. 13,14.

[2] B.K. Thapar, 'Prakash 1955: A chalcotithic site in the Tapi's Valley', *Ancient India,* Nos. 20-21, 1964, p. 105.

base. Size: length 20.5 cm, width 14 cm, thickness 5.5 cm. From a mid-level of Period I C (SKTD-2327).

4. Sandstone Quern; roughly rectangular in shape with a flat surface and convex base. Size: length 27 cm, width 13.5 cm, thickness 5.5 cm. From a late level of Period I C (SKTD-2328).

5. Sandstone Quern; ovoid in shape with flat surface, convex base. Size: length 24 cm., width 14.5 cm, thickness 6 cm. From an early level of Period I C (SKTD-240).

(d) Circular Querns

A circular quern in association with a pestle has been found from the late level of Period I C at Surkotada. Possibly this was used for pounding grains.

Pl. LIII A

1. Sandstone rough quern with a diameter of 28 cm., The cavity measures 16 cm. The pestle, found in association, is made of sandstone and is cylindrical and circular. Length 25 cm., diameter 9 cm. From a late level of Period I C (SKTD-2330).

(iii) Maceheads

Maceheads or weights for digging sticks have been reported from Mohenjodaro[1] and many other chalcolithic sites including Ahar.

Fig. 71B; Pl. LIII B

1. Sandstone Macehead; round with a hour glass perforation found in two fragments. Diameter 16.5 cm. From a mid-level of Period I C (SKTD-1874).

(iv) Sharpeners and Whet Stones

The excavation has yielded nine whet stones and sharpeners which might have been used by the metal workers, bead makers, leather workers and barbers. The whetstones and sharpeners are made of sandstone, dyke and basalt.

Period	Sharpener	Whetstone
I C	nil	2
I B	5	1
I A	1	nil

Pl. LIV A

1. Sandstone fragment of a 'U'-shaped sharpening stone with vertical grooves over it and irregular base. It was used either for sharpening long metal objects or for polishing stone beads. The sharpener has been later used as a base for pounding indicated by the

[1] Mackay:1938, pp. 397-88

obliteration of grooves due to pounding or hammering. Size: length 27 cm., width thickness (average) 5 cm. From a mid-level of the Period I B (SKTD-118).

2. Black basalt Sharpener; polished due to use. Size: length 8.5 cm, width 6.5 cm, thickness 3.5 cm. From a mid-level of Period I C (SKTD-2331).

3. Sandstone Sharpener; fragmentary with two parallel, wide and deep grooves. The grooves might have been used for sharpening metal instruments or for polishing beads. Available length 4.5 cm., width 4 cm., thickness 1.5 cm. From a late level of the Period I A (SKTD-2264).

4. Dyke Sharpener, polished on surface and side due to constant use. Probably used by the carpenters. Size: length 20.5 cm., width 9 cm., thickness 5 cm. From a mid-level of the Period I C (SKTD-2332).

Pl. LIV C

1. Sandstone Whetstone; rectangular in shape. Size: length 12 cm, width 3 cm, thickness 1 cm. Few scratches are noticed on the surface. From a late level of the Period I B (SKTD-76).

2. Sandstone Whetstone; rectangular in shape, scarcely used. Size: length 5.5 cm., width 3 cm., thickness 2.5 cm. From a mid-level of Period I B (SKTD-708).

3. Sandstone Whetstone; having concave depressions on all the four sides most probably due to much use. Size: length 8 cm, width 2 cm, thickness 2 cm. From a mid-level of Period I A (SKTD-611).

4. Sandstone Whetstone, damaged, rectangular in shape. Size: length 7.2 cm., width 2.5 cm, thickness 2.8 cm. From a mid-level of Period I A (SKTD-612).

5. Schist Whetstone; broken, highly polished due to constant use and marked by scratches. Size: length 5 cm, breadth 4.1 cm, thickness 0.7 cm. From an early level of Period I B (SKTD-111).

(v) *Mullers*

A total number of sixteen mullers or grinders have been recovered. These are mostly made out of locally available sandstone. Owing to constant use, these have been very much grounded at the edge on every side. Majority of these are oval. However, some are also rectangular in shape. The periodwise distribution is as below:

Period I C	7
Period I B	6
Period I A	3
Total:	16

Pl. LIV B

1. Sandstone Muller; roughly trapezoidal, rectangular on plan. Size: length 12.5 cm. From a late level of Period I C (SKTD-2333).

2. Sandstone Muller; plano-convex in section, flat grinding surface. Size: length 13.5 cm., breadth 9 cm, thickness 5.5 cm. From a late level of Period I A (SKTD-2334).

3. Dyke Muller; ovoid in section, polished due to use, ends grounded. Size: length 12.5 cm., breadth 6.5 cm, thickness 3 cm. From an early level of Period I A (SKTD-292).

4. Sandstone Muller; biconvex in section, used on both the sides. Size: length 16 cm, breadth 12 cm, thickness 7 cm. From a mid-level of Period I C (SKTD-2335).

5. Sandstone Muller; biconvex in section. Size: length 14 cm, width 10 cm, thickness 4.5 cm. From a mid-level of Period I B (SKTD-668).

6. Sandstone Muller; biconvex in section. Size, length 13 cm, breadth 10 cm, thickness 4 cm. From a mid-level of the Period I B (SKTD-2336).

Pl. LIV D

1. Sandstone Rubber; biconvex in section. From a late level of Period I B (SKTD-2337).

2. Sandstone Fragmentary muller; plano-convex in section. From a late level of Period I B (SKTD-2338).

3. Sandstone Rubber with plano-convex section and flat working surface. Size 17 cm, x 10 cm, x 4 cm. From an early level of Period I B (SKTD-2339).

4. Sandstone Rubber; roughly rectangular section, used on all the sides. Size: length 7.5 cm, width 5 cm, thickness 4.5 cm. From an early level of Period I C (SKTD-2340).

5. White Sandstone Rubber; rectangular in section and used on all the sides. Size: length 8.5 cm, width 5.5 cm, thickness 3.5 cm. From an early level of Period I A (SKTD-634).

D. MISCELLANEOUS STONE OBJECTS

Two pieces of stone, all coming from of the late level of Period IC are valuable acquisitions from Surkotada and were used possibly as 'gamesboard', for *cowries* or small pebbles.

1. Sandstone, Engraved stone with rough squares, probably used for playing a game with the help of gamesmen or small pebbles. Size: length 42 cm, width 42 cm, thickness 22 cm. From a late level of Period I C (SKTD-2345) (Pl. LV A).

2. Sandstone, With twelve depressions, engraved four in each row, it seems to be a gamesboard. Size: length 17 cm, width 15 cm, thickness 4 cm. From Period I C (SKTD-2344) (Pl. LV B).

E. TERRACOTTA OBJECTS

Various types of objects of terracotta have been discovered from the excavations at Surkotada. These include objects of games and toys of ritualistic or religious value, accessories in the manufacture of textiles, architectural value, domestic use, etc. In general, these include the following:

1. Animal figurines,
2. Toy-cart frames,
3. Wheels,
4. Gamesmen-ordinary and tetrahedral,
5. Hopscotch,
6. Marbles,
7. Cylindrical and conical objects,
8. Cakes,
9. Tanks,
10. Spindle-whorls,
11. Spools (for winding thread),
12. Engravers,
13. Gratings,
14. Clay Balls,
15. Net Sinkers, and
16. *Tawa*.

Majority of these have been reported from all the periods of the site indicating the continuity of the basic cultural milieu, *viz.*, of the Harappan material complex. Almost all the essential components and the traits of the terracotta craft typical of the Harappan cultural complex have been recovered at Surkotada. For instance, the typical bull-figurine is the classic example. Surprisingly no human figurine has been found at Surkotada. Even animal figurines are rare.

Game and toy objects are very well-represented. All the aspects of games emphasizing the cultural homogeneity right from the earliest times has been revealed by the evidence of finds at Surkotada. Especially, reference should be made of the toy-cart frames, wheels, hopscotch, balls, gamesmen, etc. The find of tetrahedral gamesmen reveal the extraterritorial origin of this type and its assimilation by the people of Surkotada in their game habits.

An important aspect of the religious or the ritualistic belief of the Surkotada people is to be noted. A number of cylindrical and conical objects have been found which probably indicate their ritualistic or religious use.

Similar ones have not been reported elsewhere. Their phallic symbolism suggest some sort of idea of procreation. At Kalibangan a number of fire-altars have been unearthed having clay-lined oval or circular pits with a small slab or lump of clay kept

at centre with firing done at stages. This has not been reported at Surkotada. On the other hand, the conical objects of clay at Surkotada are distinct in their shape and type and suggest a miniature *Linga* or phalic symbol. In addition, the variety of terracotta 'cakes' and tanks, also indicate their religious or ritualistic use.

The finds of spindle whorls and spools testify to the art of spinning and weaving of the times. Engravers were very likely used by potters and craftsmen for writing and engraving. The availability of net sinker suggest the knowledge of fishing in view of the proximity of river, ponds, etc. and also reflect upon the dietary habits of the people. A single *Tawa* or hot plate indicates the kitchen equipment of the times.

With this small introduction emphasizing their salient aspects, the objects have been described below under the respective headings.

1. *Animal figurines*

Animal figurines have not been found in large numbers at Surkotada. These have been reported in Periods I B and I C only and do not occur in Period I A. In all, six of these have been discovered, out of which five come from Period I C and one from Period I B.

It is quite strange that figurines are so scarce at Surkotada, whereas they are reported in abundance in other Harappan sites. Moreover, the bull is the only representative of the animal species depicted on the figurines. It is difficult to say any thing regarding other animals. So far, four bull-figurines have been found besides two horns belonging to same species. Only two of the figurines are complete, out of which one has lost the front portion. Two of the heads of animals have been found, out of which one has its mouth broken. Very likely these are bull-heads.

An important and quite impressively modelled bull-figurine of stupendous proportions has been discovered at Surkotada. It was damaged, having its hind portions intact while its front portion is lost. It is hollow inside with two perforations below the legs for the axle to pass through for attaching it to model wheels. Similar majestic bull figurines of magnified proportions have not been reported anywhere. The availability of huge wheels of 15 cm diam. and even bigger ones at Surkotada clearly indicate the use of bull-figurines of huge proportions for wheeled models. Moreover, use of the mould for production of such bull-figurines evidence the use of these toy-figurines in large numbers on a mass-scale and reveal its popularity with the children at Surkotada.

One small bull-figurine, complete, has been found at Surkotada (SKTD-831). It belongs to the normal variety of bulls but seems to have been overfired. It is realistic and recalls similar figurines from Mohenjodaro[1], Harappa[2], Chanhudaro[3], Kot Diji[4], Kalibangan[5], etc.

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[1] Mackay 1938, Pl. LXXIX 26.

[2] Vats: 1940, Pl CXX. 5

[3] Mackay: 1943, Pl. LVIII 22

[4] Khan: 1965, Pl.XXVI,2,5.

[5] *I.A R.*, 1960-61, Pl.L.A.

Following are the figurines described:

Pl. LVI

1. Bull figurine; wheeled, moulded, of the biggest size. Only the hindpart with two perforations on the legs passing through the body portion for the axle is available. Sharply made mid-ridge at the back and a gracefully coiled tail are seen. It is painted in black over white and red surface. Well-levigated clay is used and uniformly fired. Height from top of body to the leg is 13 cm., length (extant) on top 14 cm., breadth of body at back 8.5 cm. From an early level of the Period I C (SKTD-533).

2. Bull figurine; only two horns and neck remains, face is missing. From an early level of Period I C (SKTD-2239).

3. Bull figurine, having only the head upto its neck portion. Redware. From an early level of Period I C (SKTD-2338).

4. Bull figurine, complete, having a raised hump artistically made with dark black core. From a late level of Period I C (SKTD-831).

5. Horn, terracotta, of an animal figurine; damaged on both the top and bottom. It has a vertical perforation and dark gritty core. Length (extant) 4.50 cm. From an early level of Period I C (SKTD-204).

6. Similar to No.5, nearly a complete horn having perforation perhaps to fit in a toy animal figurine. Length (extant) 4.8 cm. Max. dia., 2.5 cm. Min. diam. 1 cm. From an early level of Period I B (SKTD-705).

2. *Toy-carts and Frames*

Most of the toy-carts and frames that are found are in fragmentary condition excepting one or two. It is difficult to reconstruct them all fully, but a few suggest their shape: either they form a full cart or just only a frame. Judging from the number of types of wheels and broken frames that have been found, one thing is certain, i.e., the toy-carts were popular playthings at Surkotada.

Carts and frames found here belong to two types.

I. The first type has three subtypes:

(i) The most usual type is the cart-frame generally found in all the sites of Harappan civilization. It is a strong and thick frame with four vertically pierced holes on each side to take supports of wood exactly as the little farm carts used in villages of the present day. Horizontal holes indicate the use of shafts to connect one end of the frame to the other and the middle crosspiece.

(ii) Apart from this flat cart-frame, another variety is a convex frame with a series of horizontal holes and two vertical holes at ends. It has been painted with horizontal lines at corners to indicate some sort of decoration.

(iii) The third is a flat-frame perhaps with holes for vertical supports along both the

longer sides. It had, in addition, a hole for the shaft pierced longitudinally as revealed by the examples at Chanhudaro, Harappa, etc. Some of them have also been painted with intersecting horizontal patterns indicating perhaps some sort of net or covering for the vehicle.

II. A second-type of cart-model is box-like in shape with a partition across the middle in some. There were holes at the bottom provided for the shaft and axles of the wheel for dragging the cart. A nearly complete specimen has been found with horizontal and vertical lines painted on the sides to represent either a wicker work or netting. It is quite possible that some carts had solid box-like structures while others had a wicker-work of some light bamboo or some sort of netting.

Both types of cart-frames and models were found to have been used from Period I A at Surkotada. The box-like carts are quite large in number as recorded in Period I B and Period I C. The flat variety occurs from Period I A and continues increasingly in the other two sub-periods.

Pls. LVII-LVIII

The representative cart frames are described below:

1. Cart-frame, broken; thick flat portion with two vertically pierced holes for taking support of wood. It also has a projecting out middle crosspiece, modelled by hand. (Type I). Length 9 cm, thickness 2 cm. From an early level of Period I B (SKTD-800).

2. Cart-frame, broken; medium flat-portion of a horizontal frame having only a single vertical hole. (Type-I). Length (extant), 4.2 cm, thickness 1.2 cm. From a late level of Period I B (SKTD-703).

3. Cart-frame, broken; plate-like, with a single hole pierced for vertical supports. Dusty cream fabric. (Type I). Max. and Min. thickness 1.1 - 0.6 cm. From a late level of the Period I B (SKTD-1552).

4. Cart-frame broken; flat, with two vertical and four horizontal holes. The vertical holes are only half-perforated; out of the four horizontal holes only two penetrate to the other side; the other two are half-perforated. (Type I). Length 6 cm, thickness 1.4 cm. From a mid-level of the Period I C (SKTD-1963).

5. Cart-frame, broken; modelled, of the curved variety with four extant horizontal holes and a vertical hole for taking horizontal and vertical supports respectively. Below the horizontal holes is the perforation at the centre for the axle to pass through. It has been painted with a black band along the edges (Type I). Max. thickness 2.8 cm, Min. thickness 2.1 cm. From an early level of Period I C (SKTD-1708).

6. Cart-frame, broken; thick plate-like frame, having a curved end with two vertical and one horizontal hole extant. It is painted with bands in black throughout. Finally prepared. (Type I). Extent length 4.9 cm, thickness 2 cm. From an early level of Period I C (SKTD-1450).

7. Cart-broken; thick part of a frame with vertical holes pierced to take stakes of wood (Type I). Length 4.6 cm, thickness 2 cm. From a late level of Period I A (SKTD-480).

8. Cart-frame, broken; part of a thick, box-like frame with pierced hole on top of the broad side. (Type II). Depth (inside) 1.5 cm, thickness of the base 2.5 cm. From a mid-level of Period I B (SKTD-892).

9. Cart-frame, broken; part of a box-like frame, with a partition across the middle, having a flat base. Much damaged and is difficult to visualize its complete shape (Type II). Length 11.2 cm, width 6.00 cm, thickness 0.5 - 0.9 cm. Inside height 2.2 cm. From a mid-level of Period I B (SKTD-807).

10. Cart-frame, broken; part of a box-like frame with a flat bottom. (Type II). Length 7.2 cm, thickness 0.7 to 1.5 cm. Inside depth 3.8 cm. From an early level of Period I B (SKTD-2274).

11. Cart-frame, box-like, small, is in the shape of a tub with a hole in front and at the bottom for shaft. Red ware fabric with a black slip. (Type II). Max. length 6.2 cm, min. length (bottom) 4.2 cm, height 3.3 cm, thickness 0.4 cm. From an early, level of Period I A (SKTD-686).

12. Cart-frame, is similar to No.11 with a pierced perforation near the rim. It has a curved corner; the full form is not known as it is much damaged. (Type II). From a mid-level of Period I B (SKTD-2287).

13. Cart-frame; one of the finest models, it is box-shaped with lipped corners and a hole in front and the bottom for the shaft to pull the cart. It has, in addition, a central hole for the axle to pass through. It has been painted in black with horizontal and vertical lines on the outer sides, and on the longer axis. These paintings may represent either wicker-work or netting (Type II). Length 14 cm, breadth 8 cm, depth (extant) 7 cm. From a mid-level of Period I B (SKTD-1721).

14. Cart-frame; it is broken and box-like with its curved portion extant. (Type II). Thickness 0.5 cm. From a mid-level of Period I C (SKTD-1733).

15. Cart-frame; it is box-shaped with a single vertical hole. Much damaged and broken (Type II). Extant length 10.2 cm. From an early level of Period I A (SKTD-685).

16. Cart-frame, corner portion of a box-like frame as in No.12 with a flat base. Rough fabric (Type II). Extant length 2 cm, breadth 3.6 cm, height 2.6 cm. Inside height 2 cm. From an early level of Period I C (SKTD-1744).

3. *Wheels*

The total number of wheels is eighty one. Majority of these are plain except a few which are painted. Many of these have been prepared from moulds. In general, these are made from broken potsherds by flaking and grinding them to shape. A few are quite crude, having jagged edges, perhaps prepared by inexperienced hands.

Apart from the moulded specimens in which perforations were made before firing,

the wheels which were made of pot-sherds have perforations bored on them by using some sort of a borer; this is revealed by the wide surface of the holes.

Types of wheels are many. These can be divided into nine types as shown below:

Type 1: Small, flat wheels, with a rectangular section having wide perforation on a smooth surface.

Type 2: As above, but broad at the circumference, uniformly thick, convex inside and jagged ends invariably prepared from potsherds with bored perforation.

Type 3: As Type 2, with smooth ends, convex inside and a thick section at the centre.

Type 4: Small shape, flat inside, steeply tapering miniature cone shaped hub near the perforation.

Type 5: Thick wheels with biconvex sections.

Type 6: Smooth, having a thick section and an incipient hub on one side only.

Type 7: Thin and thick section, flat inside, thick beaded ends and small hub on one side only.

Type 8: Big wheels with prominent hubs on one side only; both painted and unpainted.

Type 9: Wheels in various stages of preparations made from potsherds.

Some of wheels bear soft surface, smoothened by rubbing. The biggest has a diam. of 15 cm. and the smallest has a diam. of 2.7 cm. Perforations have been made by a sharp instrument; a few of them were prepared in a crude manner. Those prepared from moulds have a neat little perforation.

So far as the availability of wheels is concerned, the majority of them have been recorded from Period I C. Regarding types 5 of these have been found in Period I A and 4 in Period I B.

The following is the chart showing the various types and their measurements:

Type/Sl.No.	Periods			Total	Diameter cm		Thickness cm	
	IA	IB	IC		Max. Diam.	Mini. Diam.	Max. Thick.	Mini. Thick.
1	5	5	25	35	5.00	2.7	1.1	0.3
2	-	-	4	4	9.20	3.7	1.5	0.5
3	-	2	13	15	8.00	6.00	1.1	0.5
4	-	1	4	5	6.6	3.8	-	-
5	1	-	1	2	8.8	5.7	0.9	0.5
6	-	-	3	3	4.0	3.2	1.4	0.9
7	2	-	3	5	8.0	5.2	1.4	0.4
8	1	2	3	6	15.0	8.8	1.5	1.2
9	1	-	5	6	5.1	3.2	1.0	0.4
Total				81				

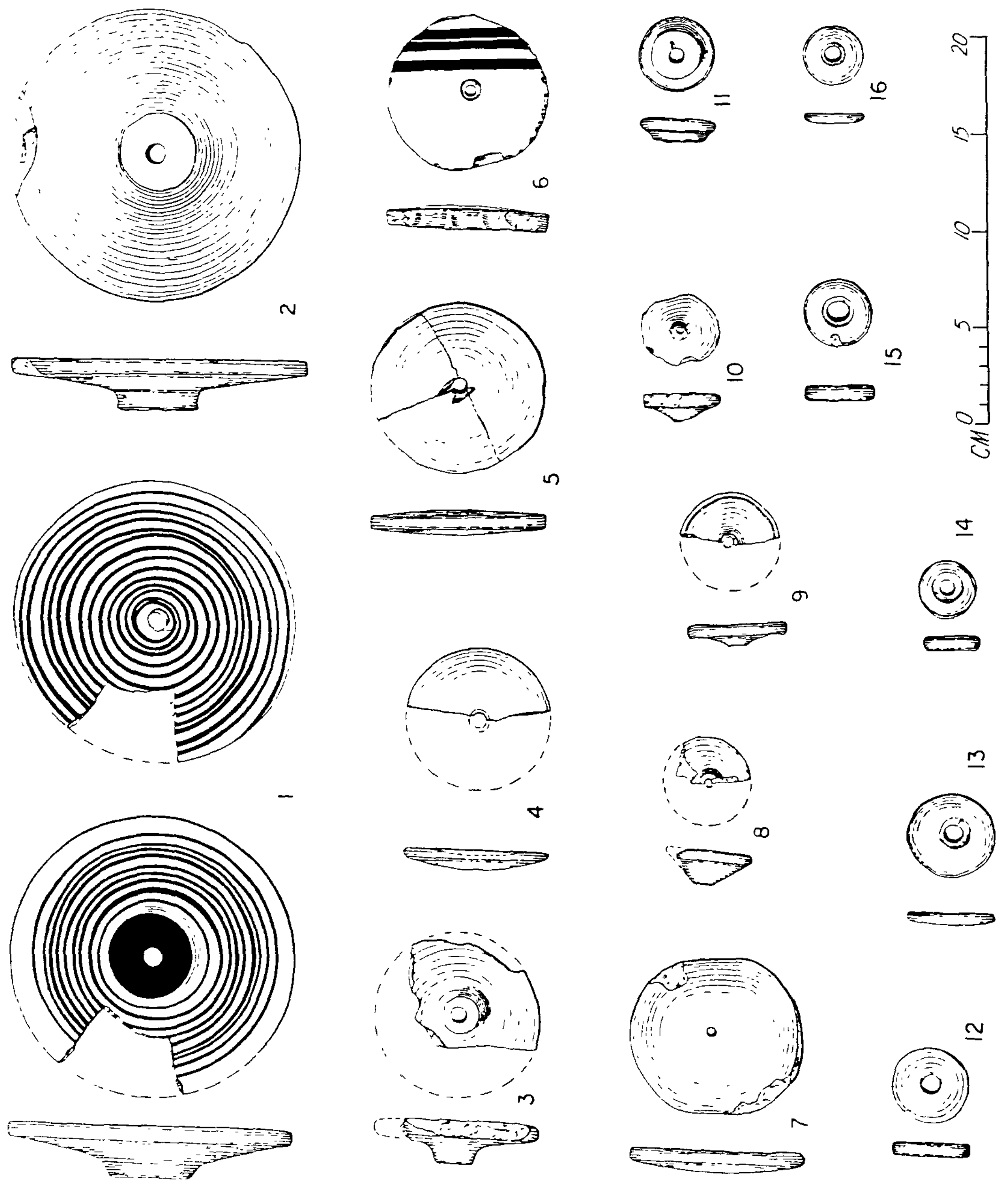


Fig. 72. Terracotta wheels.

All the types found have been represented in Period I C, which reveal the popularity of the toy-carts with the children during that period. The single-hubbed wheels alone have been found. In general, majority of them are simple, flat wheels with a wide perforation. Many of these are made from potsherds while a few were made from moulds. Some of these are painted.

The following are the wheels described :

Fig. 72 ; Pl. LIX

1. Wheel, it has a bigger circumference and prominent tapering hub on only one side. Painted in black on both sides with a continuous line up to the priphery. Outside, there is no painting on the knob whereas in the inner portion the circulation line begins near the perforation. Prepared of fine clay having a red-slipped surface (Type-8). Maximum diameter 14.5 cm, thickness (including the hub) ranges from 0.7 to 2.8 cm, diameter of hub 4.4 cm. From a late level of Period I B (SKTD-1576).

2. Wheel, complete, has the biggest circumference with prominent, straight hub on one side ; similar to wheel no.1 above but has unpainted and unslipped red surface. It has a creamy clay encrusted on the outer side; prepared from a mould. (Type 8) Diameter 15 cm, thickness (including the hub) ranges from 0.8 cm to 3 cm, diameter of hub 4 cm. From a mid-level of Period I C (SKTD-533).

3. Wheel, broken, has a prominent hub on only one side. Roughly prepared from a mould with uneven surface on the outer side. Unslipped red ware (Type 8). Diameter 8.3 cm, thickness (including the hub) 2.2 cm, diameter of hub 2 cm. From a mid-level of Period I A (SKTD-1408).

4. Wheel, half-broken, has a thick section in the middle portion and the peripheral part is rubbed to smoothness. It bears a neat small perforation; buff-surface (Type 3). Diameter 7.3 cm, thickness at centre 0.7 cm, diameter of perforation 0.8 cm. From an early level of Period I C (SKTD-1839).

5. Wheel, complete, edges flaked-off and rubbed smooth and having a biconvex section; made of red-ware, it has a pitted surface. (Type 5) Diameter 8.7 cm, thickness ranges from 0.8 to 1.3 cm. From a mid-level of the Period I A (SKTd-556).

6. Wheel, complete, is made from a broken potsherd. It is broad at the circumference and uniformly thick with convex inside and ends chipped and rubbed to smoothness. Painted with three horizontal lines. It has a bored perforation (Type 2). Diameter 2 cm, thickness 1 cm. From a mid-level of Period I C (SKTD-427).

7. Wheel, similar to No.6 but without a painted surface, having a little neat perforation. (Type 2). Diameter 8.5 cm, thickness 0.6 cm. From an early level of Period I C (SKTD-1711).

8. Wheel is small and flat inside with steeply tapering miniature cone-shaped hub with a neat little perforation. Diameter 4.4 cm, thickness (including the miniature hub) 1.8 cm. From an early level of Period I C (SKTD-1821).

9. Wheel is thin and flat inside with thick beaded ends. It has small hub on only one side. (Type 7). Diameter 5 cm, thickness (including hub) 1.1 cm. From an early level of Period I C (SKTD-2244).

10. Wheel is small, flat inside with tapering miniature hub having little neat perforation (Type 4). Diameter 4 cm, thickness (including hub) 1.5 cm. From an early level of Period I C (SKTD-1139).

11. Wheel is small, smooth, having an incipient hub on only one side. It is prepared from mould and has a big perforation. (Type 6) Diameter 3.8 cm, thickness (including hub) 1.2 cm. From a late level of Period I C (SKTD-1187).

12. Wheel is small, flat with rectangular section and straight perforation. It's edges are rubbed to smoothness; red outside and grey inside (Type 1). Diameter 3.8 cm, thickness 0.7 cm. From an early level of Period I C (SKTD-332).

13. Wheel is similar to No.12, but has a thin convex section and a wide perforation. It is prepared from a potsherd with rubbed edges. Red slipped surface. (Type 1). Diameter 4.2 cm, thickness 0.5 cm. From an early level of period I C (SKTD-1307).

14. Wheel is small, flat with a thick section having wide perforation. Bore marks are visible. Rubbed to shape from a potsherd. (Type 1). From an early level of Period I A (SKTD-442).

15. Wheel, similar to No.12, is made from potsherd and has a rectangular section and wide perforation. It is smoothened by rubbing. Redware (Type 1). Diameter 3.5 cm, thickness 0.7 cm. From a mid-level of Period I C (SKTD-182).

16. Wheel, thin, made from a plano-convex potsherd which is smoothened by rubbing and has a wide perforation. (Type 1). Diameter 3 cm., thickness 0.3 cm. From an early level of Period I C (SKTD-1310).

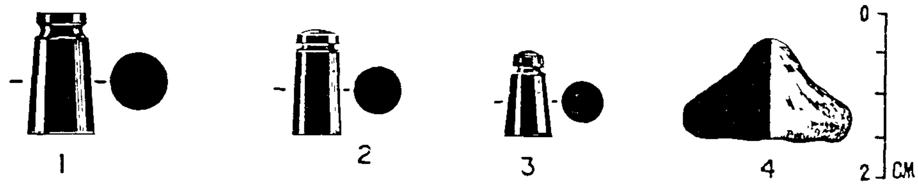
17. Wheel is unfinished with half-done perforation. Prepared from a thin potsherd with sides rubbed to smoothness. Outsides are painted with a black design on red surface. The design consists of hatched lines between two horizontal bands. White slip is visible (Type 9). Max. Diam. 3.8 cm, thickness 0.4 to 0.5 cm. From a mid-level of Period I C (SKTD-271). (Not illustrated).

18. Wheel is unfinished; rough potsherd rubbed to shape. It has half-done perforations in two adjacent places; gritty core (Type 9). Diameter 3.6 cm, thickness 0.6 cm. From a mid-level of Period I C (SKTD-12). (Not illustrated).

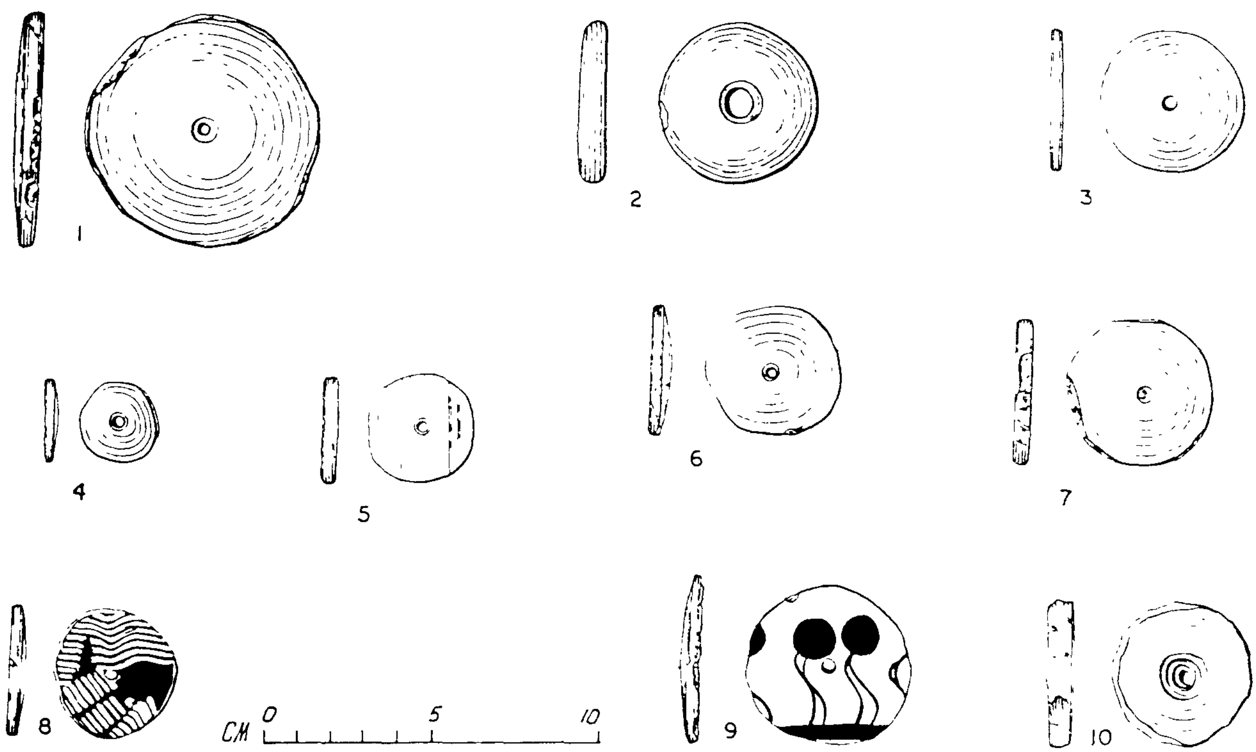
4. *Gamesmen*

(i) Ordinary

A few gaming pieces have been found from Surkotada. Two stones on their surface have faint scratched squares or grooves indicating that some sort of a game might have been played as pastime.



A



B

Fig. 73 A, Gamesman; B, spindle whorls

Six gamesmen, three each in black jasper and terracotta have been recorded from different periods at Surkotada. None of these come from Period I A; two occur in Period I B, three in Period I C and one is a surface find.

The technique of preparation is the same as that reported from a number of Harappan sites. Whereas similar gamesmen in other sites are made from various materials such as faience, terracotta, shell, agate, slate, steatite, etc. at Surkotada these are only of jasper and terracotta.

Gamesmen found at Surkotada belong to two types. The first type is a straight-sided object with a definite head or a demarcating grooved channel at the neck made from black jasper. Identical gamesmen also occur at Mohenjo-daro[1], Harappa[2], Chanhudaro[3], Kalibangan[4], etc. The only difference is that in other Harappan sites this type was found to be made of various materials, such as, shell, faience, limestone, etc. Quite a few of them are also decorated, whereas at Surkotada they are plain with only grooved tops. It is a point to note that here none of them have been reported from early levels, viz., in Period I A.

The second type is that of terracotta with a widening flat base and a round topped or cone-head. Three of them have been found at Surkotada. One of these comes from levels of the Period I B and two from Period I C. Not many of this type occur in other Harappan sites. In general, these are mostly rounded topped cones without any base.

The following are the specimens described:

Fig. 73 A

1. Black Jasper gamesman having a straight-sided body with the head demarcated by a grooved neck. Length 1.4 cm, diameter at base 0.7 cm, at top 0.5 cm. From a late level of the Period I B (SKTD-1250).

2. Black Jasper gamesman similar to No.1, but a little smaller; length 1.2 cm, diameter at base 0.5 cm, at top 0.45 cm. Surface specimen (SKTD-1).

3. Black Jasper gamesman similar to No.1, is the smallest of all. Length 1.00 cm, diameter at the base 0.5 cm, at the top 0.4 cm. From a mid-level of Period I C (SKTD-539).

4. Terracotta gamesman having a broad base and a small cone. Handmade; diameter at base 2.2 cm. From a late level of Period I B (SKTD-1270).

5. Terracotta gamesman is neatly prepared and afterwards hand finished. It has a lengthy cone but the top is broken. Diam. at base 2.7 cm, at top 0.8 cm, height of cone (extant) 1.3 cm. From a mid-level of Period I C (SKTD-539 A). (Not illustrated).

6. Terracotta gamesman with a broad concave base. It has a lengthy cone but the top is damaged. Handmade having a rough finish, but patches of black colour indicate

[1] Marshall 1931, pp 557-59; Pl.CLIII.26, 29, 30; Mackay: 1938, pp. 570-72; Pls. LIII.60; CXXXVII.3,4,6, 11-13, CXXXIX, 8-10, 17,21; CXLII.61.

[2] Vats 1940, pp 440-441; PL CXXXIX, 37-39.

[3] Mackay 1943, pp. 169-70, Pl LX.8-11

[4] Author's personal observation as one of the excavators at Kalibangan

that it is not properly fired. Diameter at base 4.5 cm, at top (extant) 1.7 cm, height (extant) 1.3 cm. From a mid-level of Period I C (SKTD-1663). (Not illustrated).

(ii) Tetrahedral Gamesmen

This very distinctive form of gamesmen, of which three specimens have been reported at Surkotada, is also well-known at a number of other Harappan sites such as Mohenjodaro[1], Harappa[2] Chanhudaro[3], etc. At other sites, this type has been reported in large numbers and especially in various materials, e.g., limestone, faience, copper, etc. At Surkotada, however it has been found to be made solely of terracotta. Moreover, at Harappa[4] many of them in terracotta are decorated.

As a rule, all the other sides are equal so that they could be put down in any position. One of them is a little higher than at the base which is wide but that is quite accidental. All are simple in shape and none of them is decorated at Surkotada.

This type is well-known and reported from a number cf West Asiatic (Sumerian) sites but all are made of stone. Both Kish and Ur have yielded them and all are decorated and belong to an early date of the Pre-Sargonid times.[5]

The availability of this type is another proof of the homogeneity of the Harappan cultural complex at Surkotada.

Out of the three specimens of gamesmen reported at Surkotada one each belong to Period I B and I C and the third one is a surface find. None has been reported from the levels of Period I A.

They are described below:

1. Tetrahedral gamesman of terracotta having sides rounded-off due to long use. It is a small one measuring 1.2 cm.from all sides. Fine grained clay. From a mid-level of the Period I B (SKTD-2252).

2. Tetrahedral gamesman of terracotta measuring 1.6 cm. on each side and has rounded edges. Rubbing and scratches indicate its long use. From a mid-level of the Period I C (SKTD-700). (not illustrated).

5. *Hopscotch*

These are flat circular objects made mostly of terracotta and sometimes of stone. These are intended perhaps to be used in play. It is quite likely that some of them were also used as spindle-whorls or model cart-wheels.

Most of the terracotta specimens are prepared from broken potsherds, by chipping them to circular shape and rubbing the sides to a soft surface. Many are flat, while a few are concave inside due to the curvature of the potsherds themselves.

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[1] Marshall. 1931, p.559; Pl CLIII.40, 41; Mackay: 1938, pp. 572-3; Pls. CXXV.27; CXXXVII.7, CXXXIX.11, 12; CXL 16,17; CXLII.63,64,73

[2] Vats 1940, pp. 456-57; Pl. CXX 55-57.

[3] Mackay. 1943, p 169; Pls LIX 25-30; LX 6

[4] Vats: 1940, pp 455-67 Pl CXX.57.

[5] Marshall: 1931, p 559.

The total number of hopscotch is sixty; out of these seven are made of stone and fifty three are of terracotta. The majority of these have been recorded from Period I C. The shape has remained unchanged throughout. The very soft surface and clear finish of those made on stone indicate their constant and long use. In many Indus Valley sites similar objects have not been recorded; perhaps being broken potsherds, these were cast off. At Ahar[1] many undecorated pottery discs have been found made from various sturdy chalcolithic wares. The large number of them found at Surkotada indicate its popularity as a gamepiece.

Periodwise distribution of hopscotch is as below:

Material	I A	I B	I C	Total
Terracotta	6	14	33	53
Stone	1	nil	6	7
Total	7	14	39	60

The following is the maximum and minimum measurement of the hopscotches found at Surkotada:

Terracotta:		
Max. Diameter	:	8.6 cm
Min. Diameter	:	2.1 cm
Max. thickness	:	1.2 cm
Mini.thickness	:	0.3 cm
Stone:		
Max. Diameter	:	7.00 cm
Min. Diameter	:	3.00 cm
Max. thickness	:	1.4 cm
Min. thickness	:	0.4 cm

The measurements indicate that they are easy to throw being less heavy and also offer a good hold for grasping.

The following hopscotches are described:

1. Hopscotch, thick and heavy made from a red ware potsherd which is rubbed to a smooth flat surface and a circular shape. Diam. 6.2 cm, thickness 1.3 cm. From a mid-level of Period I C (SKTD-782).

2. Hopscotch, prepared from grey sandstone; rubbed and smoothened to circular and flat shape. Diam. 4.2 cm, thickness 1.1 cm. From a late level of Period I B (SKTD-2156).

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[1] Sankalia *et al* 1969, p 182.

3. Hopscotch (smaller), prepared from a red ware potsherd, rubbed and smoothened to a circular shape. Very thin and lightweight. Diam. 2.1 cm, thickness 0.5 cm. From a mid-level of the Period I B (SKTD-853).

4. Hopscotch, well-prepared from a potsherd by rubbing the sides and making the surface flat, as revealed by brushed edges. Red ware. Diam. 4.1 cm, thickness 0.6 cm. From a late level of Period I A (SKTD-2182).

5. Hopscotch, prepared from a red ware potsherd with rough chipped edges and slightly concave inside. Diam. 4.3 cm, thickness 0.7 cm. From a late level of Period I A (SKTD-105) (Not illustrated).

6. Hopscotch, made from a black-and-red ware potsherd having a thin section, rough edges and concave inside. Diam. 4. 7 cm, thickness 0.3 cm. From a late level of Period I B (SKTD-1191) (Not illustrated).

7. Hopscotch, prepared from a red ware potsherd with rubbed and smooth edges and circular shape. Diam. 3.3 cm, thickness 0.7 cm. From an early level of Period I B (SKTD-95) (Not illustrated).

8. Hopscotch, roughly prepared from a thick potsherd with rubbed sides. Diam. 2.5 cm., thickness 0.9 cm. From an early level of Period I B (SKTD-1605) (Not illustrated).

9. Hopscotch, made from a thin potsherd having a red-slipped surface. It is concave inside with flaked edges, and has three horizontal painted bands on its outside surface. Diam. 3 cm, thickness 0.35 cm. From a late level of Period I A (SKTD-364) (Not illustrated).

10. Hopscotch, small, prepared from black slipped ware with thin and rubbed edges. Dim. 2.2 cm., thickness 0.3 cm. From a mid-level of Period I C (SKTD-761) (Not illustrated).

6. *Marbles*

A large number of terracotta and stone marbles have been found at Surkotada. Most of them are of lightweight which served the purpose of a plaything. But a few of them especially of stone are a little more heavy. These have been used for some purpose other than playing marbles for which they are too heavy.

All the balls of terracotta and stone are plain and devoid of decoration. Stone balls are very smooth and made from a variety of stones. Strangely none of them are decorated, though at Mohenjodaro[1], Harappa[2] and Chanhudaro[3] many bear a variety of decorations. Another characteristic feature at Surkotada is the absence of marbles of shell and faience whereas in the Harappan sites a number of them occur with a variety of decorations on them.

Various stones used for preparation of balls are sandstone, limestone, quartzite,

[1] Marshal:1931, pp. 552-53; Mackay:1938, pp. 565-6.

[2] Vats:1940, pp. 455-56.

[3] Mackay:1943, pp. 168-69.

granite, etc. The largest number of these are made of sandstone and limestone. Many of the smaller ones were used as marbles, whereas the medium-sized and the big ones were very likely used for other purposes also.

The total number of stone marbles is seventy two and of terracotta thirty two. Periodwise distributions of marbles is as below:

Material	I A	I B	I C	Total
Terracotta	14	3	17	34
Stone	21	12	39	72

Balls of terracotta have been found in large number in Period I A and I C. All of them have been prepared with great care and some have a very smooth surface. Except a few, which are quite heavy, the remaining are very handy for use by children.

Marbles of stone have been found in large numbers in all the periods. Only in the Period I B they occur in less number. The medium-sized marbles occur in large number.

The following marbles are described:

Pl. LXA - lower half 2-5

1. Terracotta Ball, big, spherical, having smoothened surface. From an early level of Period I A (SKTD-508).

2. Terracotta Ball, spherical, smaller in size having smoothened surface. From an early level of Period I A (SKTD-415).

3. Terracotta Ball, spherical surface of bigger size smoothened perhaps by use. From an early level of Period I A (SKTD-604).

4. Terracotta Ball, spherical and big, and having a smoothened surface. From a mid-level of Period I A (SKTD-573).

5. Terracotta Ball, ovoid, bigger, with flattened sides and roughened surface. From an early level of Period I C (SKTD-1048) (Not illustrated).

6. Sandstone Ball, similar to above and having more flattened sides. Surface wornout due to use. From a late level of the Period I A (SKTD-1494) (Not illustrated).

7. Grey Quartz Ball, medium size, having smoothened surface. From a mid level of Period I B (SKTD-1453) (Not illustrated).

8. Sandstone Ball, having small size and smooth surface due to use. From an early level of Period I C (SKTD-434) (Not illustrated).

7. *Cylindrical or Conical Objects*

One of the important and unique finds at Surkotada consists of cylindrical or conical objects made of clay and terracotta. The cylindrical objects have either cone-shaped ends or a flat top; others have thick sections in the middle and flat tops and bottoms. A few have thick sections above the base and body, and a top ending in cone.

In all thirteen cylindrical objects have been found, out of which seven are of clay

and six are of terracotta; clay specimens, both broken and complete, have been found in clusters of two or three. In all, clay specimens are more in number.

These are important and unique in more than one respect. All the clay specimens have been reported from Layers (14) to (16) representing the middle level of Period I A. This is quite significant in view of their cultural induction into the milieu of Surkotada along with other antiquities.

At the same time, excepting a single specimen of terracotta, all the others were predominantly reported from the Late level of Period I A and early level of the Period I B. Though the terracotta specimens are not as characteristic in shape as are those made in clay, it is quite pertinent to observe that they are not found along with clay specimens in the middle levels of Period I A. It is not quite clear why the clay specimens do not occur after the mid-level of Period I A. Very likely these were replaced later by the terracotta specimens which were durable, not easily breakable and can be preserved intact for a long time.

Another interesting characteristic is that clay specimens are always found along with ash, loose-earth, burnt charcoal, etc. indicating some sort of burning activity. No altar as such, has been recognized in association with these. That gives credence to their ritualistic character.

An important aspect is their shape. They appears to be in the form of a *linga*. In view of their predominant occurrence in association with ash, etc. they may have had some basic religious significance.

Some are of pyramid-shape with a broad base for placing them vertically. Some bear burning marks and were perhaps subjected to fire in stages.

Quite significantly, such *linga* type of objects have not been reported elsewhere. At Mohenjodaro[1] and Chanhudaro[2] a few terracotta cylindrical objects have been found but these are very thin and are different in form from those available at Surkotada. Mackay[3] calls them 'rolling pins' used to roll out thin bread or *chapatis*, that are so much in use in India.

It is quite clear that at Surkotada these *lingas* of clay in mid-level of Period I A and those of terracotta in a late level of Period I A and in Period I B played a significant role as some sort of religious symbols in the life of the people of Surkotada.

The following are the specimens illustrated and described:

Pl. LX B

1. Yellowish clay unbaked, conical object, broken, with a flat base, flattened conical top, and soft surface. Length 6 cm, dia 3 cm. From a mid-level of Period I A (SKTD-138).

2. Yellowish clay unbaked unbroken cone-shaped object, beautifully made in the form of a pyramid with a rounded top and flat broad base; small and stunted in size. Soft

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[1] Mackay: 1938, p. 434; Pls CIV.10; CVIII.22,23.; Marshall: 1931, pp. 478-79, Pl. LXXXI.42.

[2] Mackay: 1943, p. 220; Pl. XCI.47-49.

[3] *ibid.*

surface. Scratch marks on rounded tops are visible. Length 4 cm, diameter at base 3 cm. From an early level of Period IB (SKTD-1690).

3. Soft yellow clay unbaked cone-shaped object with flat top, broken bottom and smooth surface. Length (extant) 6 cm, diam. at bottom, 2.6 cm, at top 1.6 cm. From a mid-level of Period I A (SKTD-138 A).

4. Clay cone-shaped object having slightly rounded top and flat bottom. It has a steep tapering shape with smooth surface. Broken bottom. Length 6 cm, diameter at base 3 cm, at top of cone 1 cm. From a mid-level of Period I A (SKTD-139).

5. Terracotta cylindrical-shaped complete object, flattened on both sides. Firing is not uniform: fabric is coarse. Length 5.6 cm, diam. at the top and 2.1 cm at the bottom. From a late level of Period I A (SKTD-298).

6. Fine yellow clay unbaked cylindrical-shaped object is complete and similar to No.5. It is flattened on both sides with a section thicker at the middle becoming thinner at top and bottom. Heavy and smooth surface. Length 10.4 cm, diam. on top and bottom 2.2 to 2.3 cm. From a mid-level of Period I A (SKTD-138 B).

7. Yellow clay cone-shaped cylindrical object with thickened middle and rounded bottom. Top ends in a tapering cone. Smooth surface. Length 8.6 cm. From a mid-level of Period I A (SKTD-136).

8. Fine yellow clay unbaked cylindrical object with top and bottom broken. Smooth surface. Length (extant) 6 cm, diameter 2.6 to 2.8 cm. From a mid-level of Period I A (SKTD-133).

9. Soft yellow clay unbaked cone-shaped cylindrical object ending in flat top. Broken bottom; length (extant) 5.5 cm, diam. at bottom (extant) 3 cm, at top 1.2 cm. From a mid-level of Period I A (SKTD-131). (Not illustrated)

10. Terracotta cone-shaped cylindrical object, similar to No.9, having broken top and bottom. Soft surface. Diam. at base (extant) 2.5 cm, length (extant) 5.2 cm. From a late level of Period I A (SKTD-2185). (Not illustrated)

8. *Terracotta Cakes*

Terracotta cakes have been reported in all the periods of Surkotada in large numbers without any discernible change. These are of three different shapes - triangular, oval and circular or round. Out of these three shapes, the triangular variety occurs in abundance, followed by an oval shape and circular variety is rare. Both the triangular and oval shapes have a flat top and bottom while the circular ones have a round surface. In general, such cakes have been prepared from the medium to coarse type of clay with the edges neatly prepared. Quite a few have been beautifully made with a soft surface having a uniform thickness. In general the thickness of the cakes ranges from 1.5 cm to 2 cm. They are quite handy and are not too heavy for handling.

They bear no surface decoration such as a wash or slip. Many of these have been found in clusters ranging from two to six. However, the individual occurrence is also

recorded. Their purpose is not clear. At Kalibangan, these have been used for floors, roads, etc; triangular and oval cakes have been used in clay-lined fire hearths within rooms of houses indicating perhaps some ritual use.[1]

Similarly, at Surkotada their use for some ritual cannot be ruled out.

Terracotta cakes have been reported in most of the Harappan sites and their prevalence at Surkotada is another proof of the cultural identify of its people with those from Harappa, Mohenjo-daro, Kalibangan, Kot Diji, etc.

The total number of terracotta cakes is fortyfour in which many have been found in clusters ranging from one-to-nine and their periodwise distribution is as below:

I A	I B	I C
10	26	8

Quite significantly, these have been reported in large numbers from Period I B.

Following terracotta cakes are illustrated and described:

Pl.LXI

1. Cake, triangular in shape, well-fired and neatly made. Whitish encrustations are seen on the surface. Thickness 1.5 cm. From a mid-level of Period I B (SKTD-1847).

2. Cake, oval-shaped, having gritty core marked by black patches due to overfiring and cream-coloured soft surface. Slightly damaged. Thickness 1.5 cm. From a mid-level of Period I C (SKTD-2261).

3. Cake, triangular, broken, having wellfired rounded corners with soft surface. Thickness 2 cm. From a mid-level of the Period I C (SKTD-1921).

4. Cake, triangular, much broken, gritty core, not uniformly fired and having black patches at places. Thickness 2 cm. From a late level of Period I C (SKTD-2256).

5. Cake, triangular, similar to No. 4, prepared from well-levigated clay and uniformly fired. Top peeling off owing to moisture. Thickness 1.6 cm. From a mid-level of Period I B (SKTD-225).

6. Cake, triangular in shape, complete, prepared from well-levigated clay and uniformly fired. Thickness 1.3 cm. From a mid-level of Period I B (SKTD-225 A).

7. Cake, triangular, complete, similar in size to No.6 with black patches at places; on one side of the cake a cavity (by scooping out clay before firing) is seen at centre. Thickness 1.7 - 1.5 cm. From a mid-level of Period I B (SKTD-219).

8. Cake, circular or round in shape (similar to a lens), complete, uniformly fired and with occasional black patches on the surface. From a mid level of Period I A (SKTD-1368).

9. Cake, triangular, much broken, prepared from well-levigated clay and uniformly fired with a soft surface. Thickness 2.2 cm. From an early level of Period I B (SKTD-2308).

10. Cake, triangular, much damaged and prepared from coarse clay having a gritty core, but a well-fired cream-coloured surface. Thickness 2 cm. From a late level of Period I A (SKTD-82).

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[1] Author's personal observations.

11. Cake, triangular with one part broken. It has a gritty core and is well-fired. Thickness 2 cm. From an early level of Period I A (SKTD-2262).

12. Cake, triangular, much broken, prepared out of well-levigated clay. Thickness 1.5 cm. From an early level of Period I A (SKTD-2309).

9. *Miniature Tanks of Terracotta*

These are square objects of box-like shape made of terracotta. These resemble small or miniature tanks, perhaps used for some ritual or religious ceremonies. Prepared from rough and coarse-grained clay, they show a rough finish. No external surface decoration has been found. Only one of these has a near full-shape while the other is broken.

Out of the two discovered, one occurs in Period I B and the other in I C.

Following are described:

Pl.LXIIA

1. Tank of terracotta, having a rectangular shape with raised sides and a flat base. One half is damaged. It has a coarse fabric, rough surface and gritty core. No decoration. Length (extant) 16.5 cm, breadth 11.5 cm, height 8 cm, thickness of sides 2.8 cm. From a late level of Period I C (SKTD-2311).

2. Only the raised side of a terracotta tank remains; it is smaller than the above specimen, damaged and is made of coarse clay of rough fabric. Length (extant), 11.5 cm, thickness 3 cm. From a mid-level of Period I B (SKTD-99).

10. *Spindle-Whorls*

Spindle-whorls are found in large numbers as at Mohenjodaro and Chanhudaro, indicating that the art of weaving must have been practised extensively. Most of them are made from broken potsherds by chipping the edges and rubbing them to a round shape. Quite a number of them have also been prepared from moulds. The holes were so small that perhaps a stick with sharpened ends was inserted inside. The very thin and small size of these suggests that perhaps fine thread was spun from quite a few. Their cream surface has been painted with a design of two round buds upon stalks in black. A perforation has been made in between the buds[1]. The shape has remained unchanged throughout.

The total number of spindle whorls is sixtythree. A few of them are half-broken. Except a single specimen of shell, all the others are made of terracotta. Nine of these occur in Period I A, five in Period I B and fortynine in Period I C.

Material	Full	Broken	Unperforated
Terracotta	44	13	5
Shell	1	-	-
Total:	45	13	5

[1] It is interesting to recall a similar painted design occurring on the pottery from Surjangal.

Spindle-whorls found here can be divided into five types on the basis of shape and perforation:

Type 1: Thin, flat, with small perforation.

Type 2: Thick, flat, with small perforation

Type 3: Thin, concave inside, with small perforation.

Type 4: Thick, concave inside with large perforation.

Type 5: Unperforated spindle-whorls.

Type of spindle-whorls and this measurments:

Type/Sl.No.	Periods			Total	Diameter. Cm.		Thickness. Cm.	
	IA	IB	IC		Max.	Mini.	Max.	Mini.
1	2	3	19	24	5.5	2.3	0.5	0.15
2	2	Nil	2	4	4.5	3.4	1.0	0.5
3	Nil	1	24	25	7.0	2.2	0.7	0.2
4	1	Nil	4	5	5.0	3.4	0.7	0.25
5	2	1	2	5	4.2	2.4	1.0	0.45
Total	7	5	51	63	-	-	-	-

Of all the above types, the most common and popular shapes are Types 1 and 3. All the shapes occur mainly in the Period I C. Type 3 is absent in Period I A and Types 2 and 4 are not found in Period I B.

Following spindle-whorls are illustrated and described:

Fig. 73 B

1. Thin, flat, made from a chipped potsherd, and shaped by rubbing the edges; red ware (Type 1). Diameter 6.5 cm, thickness 0.45 cm. From a mid-level of Period I C (SKTD-2265).

2. Prepared from a mould, thick and flat, with a large perforation and having a smoothened surface. Red ware (Type2). Diameter 4.5 cm, thickness 0.6 cm. Diameter of perforation 1.00 cm. From a late level of the Period I A (SKTD-1476).

3. Prepared from mould, thin, flat, and having a smooth surface. Red ware (Type 1). Diameter 4.1 cm, thickness 0.2 cm, diameter of perforation 0.4 cm. From an early level of Period I C (SKTD-185).

4. Smallest in size, made from a potsherd having smoothened edges; perforation drilled from outside. Black ware (Type 3). Diameter 2.2 cm, thickness 0.3 cm. Diameter of perforation 0.4 cm. From a mid-level of Period I C (SKTD-830).

5. Prepared from a potsherd with smoothened edges and concave inside. Red ware with a black band at the edge, drilled perforation (Type 3). Diameter 3.1 cm, thickness 0.45 cm, diameter of perforation 0.4 cm. From a late level of Period I C (SKTD-1772).

6. Prepared from a potsherd, thin and concave inside, with chipped and smooth

edges. Red ware (Type 3). Diameter 3.8 cm, thickness 0.4 cm, diameter of perforation 0.4 cm. From a late level of Period I C (SKTD-1414).

7. Prepared from a potsherd with smoothened edges; half-perforated, red ware (Type 5). Diameter 4.2 cm, thickness 0.4 cm. From an early level of Period I C (SKTD-2245).

8. Cut out and made from a potsherd rounded by rubbing the edge; its inside is concave; bored perforation; black-and-red ware with painted white designs consisting of groups of wavy and short lines (Type 3). Diameter 3.5 cm, thickness 0.3 cm, diameter of perforation 0.4 cm. From a late level of the Period I C (SKTD-2184).

9. Cut from a cream slipped plano-concave potsherd and with chipped edges rubbed to a round shape. It is painted in black with two buds sprouting from a double stalk and resting on a border line at bottom; it is drilled from the inside. Similar painted sherds also occur at Sur Jangal (Type 3). Diameter 4.8 cm., thickness 0.35 cm, diameter of perforation 0.4 cm. From a late level of period I C (SKTD-1814).

10. Unfinished, prepared from a potsherd, with perforation drilled to two-thirds of the sherd and edges chipped to a round shape. Red ware (Type 5). Diameter 4.00 cm, thickness 0.8 cm. From an early level of Period IB (SKTD-2101).

11. Thick, concave inside, with large perforation made from a potsherd having chipped and smoothened edge. Red ware; perforation drilled from both sides (Type 4). Diameter 4.6 cm, thickness 0.6 cm, diameter of perforation 0.8 cm. From an early level of the Period I A (SKTD-665). (Not illustrated).

Spindle-whorls are very rarely found in Periods I A and I B but occur in plenty in Period I C. The shape has remained unchanged throughout the habitation of the side. An important spindle-whorl is that made out of a shell[1]. It has been ornamented with incised fluted design. Similar ones in shell and faience also occur at Mohenjo-daro[2]. Identical ones in terracotta have also been found here. But strangely enough, no double or triple perforated spindle-whorls have been reported at Surkotada but they do occur in large numbers at Mohenjo-daro.

11. *Spools for winding thread*

These comprise of stunted cone-shaped objects with a rounded top and flat bottom having a perforation on a flat bottom at the centre. The hole does not go beyond 0.5 cm. of the interior. Their purpose is not clear. They are not plumb bobs as the perforation does not extend up to the other side for tying the thread at end. Very likely they were spools used for winding the thread, having two spools, one on each side, joined by a stick through the perforation.

Six of them have been discovered; three come from Period I A, one from Period I B and two from Period I C.

All of these have been prepared out of fine levigated clay that burnt red and three

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[1] (See Ante 8Jp) Spindle-whorl in shell, thin with concave inside; smoothened surface incised with shallow flutings (Type 3) dia. 2.5 cm., thickness 0.2 cm. From mid-level of Period I A.

[2] Mackay: 1938, p. 417; Pls. CVI.22; CVII.11; Marshal: 1931, pp. 469, 470; Pl CLVII 41, 47.

of them are very nicely finished. Clay lumps were prepared by hand and finished off by beating and making the surface smooth. One of these has been prepared by a mould also.

Following are the spools described:

Pl. LXII B

1. Terracotta Spool is quite heavy, with a perforation at centre. Handmade with rough surface. Diameter of perforation 0.6 cm. Dark patches on the surface. From an early level of Period I C (SKTD-35).

2. Terracotta Spool is damaged near perforation and finished nicely. Diameter of perforation 0.4 cm. From a late level of the Period I C (SKTD-1756).

3. Terracotta Spool is complete with flat bottom and neat little perforation up to half of the spool. Fine red ware. Diameter at base 1.1 cm. Diameter of perforation 0.2 cm. From a mid-level of Period I A (SKTD-354).

4. Terracotta Spool is similar to No.2 and of equal size. Smooth surface. Red ware, broken near the perforation, which is bored up to half of the spool. Diameter of perforation 0.4 cm. From a mid-level of the Period I A (SKTD-131).

5. Terracotta Spool, finest of all the specimens, is prepared from mould, smoothened and rounded off with a finer surface perhaps due to longer use. Flat base. Diameter of base 1.1 cm, of perforation 0.5 cm. From a mid-level of Period I B (SKTD-1334).

12. *Engravers*

Two terracotta objects in the shape of a pencil ending in a cone have been reported at Surkotada. These have been rubbed and prepared like a pencil of modern times. Presumably, these have been used by the potters for painting pots and by craftsman for other purposes. These have been prepared out of the potsherds and the sharpened point is quite smooth indicating its long use. It has a rectangular section and the shape is convenient to hold.

These are quite important specimens reported at Surkotada, in view of their utility for engraving and for writing also.

The total number is two; one each has been reported from levels of I A and I B.

Following are illustrated and described:

Pl. LXIII A

1. Engraver; prepared from a potsherd, later rubbed and smoothened. It has an oval section. The tip-part is broken. Redware. Diameter at base 1.5 cm., at end (extant) 1.1 cm, length 4.5 cm. From a mid-level of Period I B (SKTD-2198).

2. Engraver; prepared from a potsherd of red ware, having its tip ending in a cone preserved; it is quite smooth. It has a smooth surface with flattened sides. Rectangular section. The tip almost resembles the modern pencil. From a late level of Period I A (SKTD-1540).

13. *Gratings*

These are decorative pieces fixed on walls to serve as ventilators or windows for providing more light and air into the interior of houses.

Only three pieces, one each in periods I A, I B and I C, have been reported from Surkotada. Two of them, though broken, quite clearly reveal their purpose.

These are flat pieces made of fine thick clay, red in colour. The baking is more than usual and they are heavier than pottery. The gratings have been cut by a knife or some sharp instrument. These have been in vogue from the earliest times at Surkotada and are quite distinctly an important architectural feature of the houses.

Similar gratings also occur at Mohenjodaro[1]. Surkotada specimens compare well with those found at Mohenjodaro, where the gratings are better and fully preserved.

The following are the gratings from Surkotada:

Pl. LXIII B

1. Terracotta Grating 1.1 cm. thick. The incisions have been cut with a knife. It has a perforations at its centre. Elaborate in design, it is roughly decorated with scratched lines. Heavier than pottery. Identical pieces occur at Mohenjo-daro. From a mid-level of Period I C (SKTD-623).

2. Terracotta Grating 1.2 cm. thick,and incisions cut by a knife. Compact and heavy core. From a mid-level of Period I B (SKTD-312).

3. Terracotta Grating, an 'L' - shape piece alone is extant 1.1 cm thick. From a late level of Period I A (SKTD-2958).

14. *Clay Ball*

A heavy clay ball has been found at Surkotada. It has a porous surface. Its use is not clear. Quite likely it is a ballista ball. Similar roughly baked clay objects are found in Mesopotamia, chiefly at the base of city walls of the early periods and are thought to be ballista balls but no direct evidence is forthcoming for it. Many objects of this shape occur at Mohenjodaro.[2]

1. Clay ball, spherical in shape, is roughly prepared and has a gritty core. Quite heavy. From a late level of Period I B (SKTD-412) (Not illustrated).

15. *Net-Sinker*

Only a single specimen in terracotta has been found.

Terracotta Net sinker is of terracotta having thick ends and a thinner section in the middle. Diameter at one end (extant) 1.7 cm, length 3.4 cm. From a late level of the Period I A (SKTD-2242). (Not illustrated).

16. *Tawa or Hot Plate*

A single specimen has been found at Surkotada:

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[1] Marshal : 1931, p.465; Pls.CXXXI.43, 46 (Terracotta), CXXXIII.10,11 (alabaster).

[2] *ibid.*, Pl.CXXXI.44-45.

Tawa, circular-shaped, having a thickness of 3.2 cm. Only one-quarter of the object is extant. This is very likely to have been a hot plate used for preparing *Chapatis*. It is unusually heavier than pottery. Rough and solid core has patches of whitish encrustations on it. From an early level of Period I C (SKTD-2412).

F. TERRACOTTA AND SHELL BANGLES

(i) Terracotta Bangles and Rings

Unlike shells, there are not many bangles of terracotta at Surkotada. However, these are distributed through all the cultural periods of the Harappan occupation of the site of Surkotada.

Incidence of Terracotta Bangles

Period	Numbers
I A	54
I B	20
I C	29
Total:	103

Thus, while period I C has yielded as many as twentynine fragments of terracotta bangles, the underlying Period I B could furnish with only twenty bangle fragments. However, the earliest Period I A has yielded the largest number, fiftyfour specimens, of bangle fragments. No complete specimen has been recovered from the excavation.

Double bangles are absent. A decorated bangle is represented by only one fragment. However, it may be an intrusion. The painted bangle is represented by a few fragments only. Thin, medium, and thick-all the varieties are known. All the available specimens from Surkotada are invariably circular in section. They appear to have been made of rolls of clay by hand.

A close study of the make up of the bangles of terracotta discovered at Surkotada reveals that the bangles of a thinner variety are generally forthcoming from the earlier levels of the habitational deposits, a feature noticeable in the case of bangles of shell, too. Contrary to the bangles of the later levels these are fairly thin fine and sufficiently sturdy.

From the stratified deposits of Surkotada, there are some nine specimens of terracotta which may tentatively be termed as rings. Their typological make up is such that they may even represent forms of beads or whorls or ear-ornaments. None of them are, however, illustrated.

Pl. LXIV

1. Terracotta bangle fragment, medium in size and circular in section. From a mid-level of Period I C (SKTD-2346).

2. Terracotta Bangle fragment, medium in size and circular in section. From an early level of Period I C (SKTD-702).

3. Terracotta Bangle fragment, medium in size and circular in section. From a late level of Period I A (SKTD-1483).

4. Terracotta Bangle-fragment, thin and circular in section. From a mid-level of Period I A (SKTD-722).

5. Terracotta Bangle-fragment, thin and circular in section. From an early level of Period I A (SKTD-2046).

6. Terracotta Bangle-fragment, medium and circular in section. From an early level of Period I A (SKTD-2347).

7. Terracotta Bangle-fragment, thick and circular in section, and decorated with incised wavy bands and oblique lines. From a late level of Period I C (SKTD-2348).

8. Terracotta Bangle-fragment, thick and circular in section. From an early level of Period I B (SKTD-2352).

9. Terracotta Bangle-fragment, medium and circular in section. From an early level of Period I B (SKTD-221).

10. Terracotta Bangle-fragment, medium and circular in section. From a late level of Period I B (SKTD-703).

11. Terracotta Bangle-fragment, thin and circular in section and red slipped. From a late level of Period I C (SKTD-1931).

12. Terracotta Bangle-fragment, same as No.9 above. From an early level of Period I B (SKTD-221/A).

13. Terracotta Bangle-fragment, medium and circular in section. From a mid-level of Period I A (SKTD-722/A).

14. Terracotta Bangle-fragment, thin and circular in section. From an early level of Period I A (SKTD-2350).

15. Terracotta Bangle-fragment, thin, circular in section and painted in red. From a mid-level of Period I A (SKTD-648).

16. Terracotta Bangle-fragment, thick and circular in section. From a mid-level of Period I C (SKTD-393).

17. Terracotta Bangle-fragment, thin and circular in section. From a late level of Period I B (SKTD-1287).

18. Terracotta Bangle-fragment, thick and circular in section. From a late level of Period I B (SKTD-73).

19. Terracotta Bangle-fragment, thick and circular in section. From a late level of Period I A (SKTD-2349).

20. Terracotta Bangle-fragment, thick and circular in section. From an early level of Period I B (SKTD-1342).

(ii) Shell Bangles

Bangles of shell are amongst the most prolific finds from Surkotada. They are noted both for quantity as well as for variety. Quantitatively, they quite comfortably outbid those of terracotta. It is apparent from the fact that against one hundred and three fragments of bangles of terracotta, two hundred and seventy three fragments of shell bangles are recorded at Surkotada. They are distributed as below:

Incidence of Shell Bangles

Period	Numbers
I A	94
I B	58
I C	121
Total	273

It has been observed that the bangles, which are forthcoming from the earlier levels of the habitational deposits, are, compared to the bangles of the later levels, thin, fine, and sturdy.

As already pointed out above, the bangles of shell are noted, besides quantity, for variety, too; while they are characterized by varying diameters, they are also distinguished by fascinatingly decorated patterns. The decorations are:

(1) Geometrical-patterns and,

(2) Channelled-patterns.

Among the former, the following are presented:

(i) Incised acute angles, and,

(ii) Scratched slanting lines.

Among the latter, the channelling is varied and deft. Sometimes, the channelled-patterns are combined with geometrical patterns like scratched slanting lines.

The decorated geometrical-patterns are noticeable at Lothal[1] and Rangpur[2] also in the Harappan context. But the channelled-patterns are unique at Surkotada.

Taken on the whole, the plain bangles were preeminently popular at Surkotada.

The discovery of a large number of complete shells, columnellas, outer coverings and the fragments of sawn shells undubitably point out the possibility that shell bangles were wrought locality. This may be attributed to the obvious durability of the raw material and the apparently easy ascesibility to the sea and also popularity.

In transverse sections, the following are represented:

i) Plano-convex,

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[1] Rao: 1956-57, Pl. XXXVIII-fig.35

[2] Rao: 1962, Pl. XXXVII-A

ii) Squarish,

iii) Oblong,

iv) Channelled,

v) Concavo-convex, and

vi) Pentagonal,

Of all bangles, those with pentagonal section are most popular. Bangles of shell with a circular section are not recorded at Surkotada. At Rangpur[1] also, bangles with plano-convex section are represented.

Pl. LXV

1. Shell Bangle-fragment, channelled in section, decorated with a sharp mid-ridge, shallow channels and scratched slanting lines. From a late level of Period I B (SKTD-900).

2. Shell Bangle-fragment, channelled in section, decorated with the patterns of two ridges interspersed amongst three shallow channels. From a late level of Period I B (SKTD-1075).

3. Shell Bangle-fragment, channelled in section, decorated with the pattern of a mid-ridge and flattish shallow channels. From a mid-level of Period I C (SKTD-495).

4. Shell Bangle-fragment, channelled in section, decorated with the pattern of as many as eight neatly and closely incised sharp ridges with correspondingly very narrow and deep channels. From a mid-level of Period I C (SKTD-2125).

5. Shell Bangle-fragment, channelled in section, decorated with the pattern of as many as five neatly carved, sharp ridges with five deep channels. From a mid-level of Period I C (SKTD-1650 and 1774).

6. Shell Bangle-fragment, concavo-convex in section, decorated with the pattern of scratched slanting lines. From a late level of Period I A (SKTD-1282).

7. Shell Bangle-fragment, plano-convex in section. From an early level of Period I C (SKTD-34).

8. Shell Complete bangle, concavo-convex in section, decorated with the pattern of two incised oblique lines meeting at an acute angle. From a mid-level of Period I C (SKTD-1980)

9. Shell Bangle-fragment, concavo-convex in section, decorated with the pattern of scratched slanting lines. From a late level of Period I B (SKTD-52).

10. Shell Bangle-fragment, concavo-convex in section, decorated with the pattern of two incised oblique lines meeting at an acute angle. From an early level of Period I C (SKTD-1622).

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[1] Rao 1962, p 149

11. Shell Bangle-fragment, concavo-convex in section, decorated with the pattern of two incised oblique lines meeting at an acute angle. From an early level of Period I C (SKTD-1210).

12. Shell Bangle-fragment, pentagonal in section, decorated with the pattern of two incised, oblique lines meeting at acute angles. From a late level of Period I A (SKTD-1423).

13. Shell Bangle-fragment, pentagonal in section, decorated with the pattern of two incised, oblique lines meeting at an acute angle, distinguished by a very sharp mid-ridge. From a mid-level of Period I A (SKTD-502).

14. Shell Bangle-fragment, pentagonal in section, decorated with the pattern of two incised oblique lines meeting at an acute angle. From an early level of Period I B (SKTD-1390).

15. Shell Bangle-fragment, channelled in section, decorated with a mid-ridge buttressed by two side-ridges interspersed between two straight-ridged channels, probably purported for some inlay works. It is pinkish, probably coloured with some vegetable materials. From a mid-level of Period I B (SKTD-1526).

16. Shell Bangle-fragment, pentagonal in section, decorated with the pattern of two incised, oblique lines meeting at an acute angle, as well as also the pattern of scratched slanting lines. From a mid-level of Period I B (SKTD-334).

17. Shell Bangle-fragment, pentagonal in section, decorated with the pattern of scratched slanting lines. From an early level of Period I B (SKTD-323).

18. Shell Bangle-fragment, pentagonal in section, decorated with the pattern of scratched, slanting lines and distinguished by a sharp mid-ridge. From a late level of the Period I B (SKTD-1629).

19. Shell Bangle-fragment, pentagonal in section, decorated with the pattern of two incised oblique lines meeting at an acute angle to form the shape of an arrowhead. From a late level of Period I C (SKTD-834).

Pl. LXVI

1. Shell Bangle-fragment, plain and pentagonal in section. From a mid-level of Period I C (SKTD-1364).

2. Shell Bangle-fragment, plain and pentagonal in section with very sharp mid-ridge. From a mid-level of Period I C (SKTD-2146).

3. Shell Bangle-fragment, plain and plano-convex in section. From a mid-level of Period I C (SKTD-396).

4. Shell Bangle-fragment, plain and pentagonal in section. From an early level of Period I B (SKTD-311).

5. Shell Bangle-fragment, plain and pentagonal in section with sharp ridge. From an early level of Period I A (SKTD-243).

6. Shell Bangle-fragment, plain and pentagonal in section with sharp mid-ridge. From a late level of Period I B (SKTD-697).

7. Shell Bangle-fragment, plain and oblong in section. From a mid-level of Period I A (SKTD-490).

8. Shell Bangle-fragment, plain and plano-convex in section. From an early level of Period I A (SKTD-1394).

9. Shell Bangle-fragment, plain and oblong in section with very sharp mid-ridge. From an early level of Period I C (SKTD-356).

10. Shell Bangle-fragment, plain and squarish in section. From an early level of Period I C (SKTD-833).

11. Shell Bangle-fragment, plain and pentagonal in section. From a late level of Period I B (SKTD-1455).

12. Shell Bangle-fragment, plain and oblong in section with sharp mid-ridge. From a late level of Period I B (SKTD-103).

13. Shell Bangle-fragment, plain and pentagonal in section. From an early level of Period I B (SKTD-323).

14. Shell Bangle-fragment, plain and pentagonal in section. From a mid-level of period I A (SKTD-503).

15. Shell Bangle-fragment, plain and pentagonal in section with sharp mid-ridge. From a mid-level of Period I A (SKTD-595).

16. Shell Bangle-fragment, plain and oblong in section with sharp mid-ridge. From a mid-level of Period I A (SKTD-435).

17. Shell Bangle-fragment, plain and pentagonal in section. From a late level of Period I C (SKTD-1348).

18. Shell Bangle-fragment, plain and pentagonal in section with very sharp mid-ridge. From an early level of Period I A (SKTD-248).

G. BEADS

1. Excavations

Beads from Surkotada are noted both for variety in shapes and diversity in materials. Besides twelve beads picked up during the course of humus clearance, as many as one thousand and fifty beads have been obtained from the stratified deposits ranging from Period I A to Period I C of the site of Surkotada. Out of a total of 1050 beads, the earliest Period I A has recorded 309 beads; the intermediary Period I B could yield only 110 beads; while the last Period I C, outstripping the statistical strength of the preceding periods, has put on record as many as 631 beads.

Relatively, a lean numerical build-up of beads during Period I B may be attributed possibly to the fact that the occupational deposit assignable to Period I B is comparatively thin. It is hardly a metre or so.

Materialwise classifiction of the beads is as under:

Name of the material	Excavated	Surface
Terracotta	131	2
Sandstone	4	nil
Agate	15	nil
Jasper	5	1
Faience	30	3
Serpentine	3	nil
Lapis Lazuli	7	nil
Carnelian	113	3
Shell	22	nil
Steatite[1]	711	2
Bone	2	nil
Paste	1	nil
Crystal	nil	1
Chalcedony	1	nil
Cherty rock	1	nil
Copper	4	nil
Total[2]	1050	12

A perusal of the table showing the periodwise distribution of beads classified according to materials reveals that the largest number of beads are found to be made of steatite (711 beads), while paste (1), Chalcedony (1) and Cherty rock (1) have contributed very meagrely. Copper is shown to have yielded only four beads but as a matter of fact only four beads of copper, representing all the key-shapes, could be extricated from the hoard for description here; the rest of them are still embedded in the lump in incrusted condition.

[1] Excluding two large hoards consisting of about 2000 and 1000 beads respectively.

[2] This total does not include those which are either unfinished or finished but unperforated. These, along with the raw-materials, are included under "Technique" of beads.

Periodwise distributions according to materials

Period	IA	IB	IC	Total
Terracotta	13	12	106	131
Sandstone	nil	1	3	4
Agate	5	4	6	15
Jasper	nil	1	4	5
Faience	nil	5	25	30
Serpentine	nil	nil	3	3
Lapis Lazuli	4	1	2	7
Carnelian	2	2	109	113
Shell	1	3	18	22
Steatite	282	80	349	711
Bone	1	nil	1	2
Paste	nil	1	nil	1
Chalcedony	nil	nil	1	1
Cherty rock	1	nil	nil	1
Copper	nil	nil	4	4
Total	309	110	631	1050

From a close scrutiny of the tables showing periodwise distribution of beads and their classification according to shapes it is apparent that the people inhabiting the Harappan site of Surkotada seem to have had a pronounced fancy for disc-shaped beads (606 beads); this form has convincingly overwhelmed the other shapes.

Periodwise distribution according to shape

Shapes	Period IA	Period IB	Period IC	Total	Surface
Disc	187	77	342	606	5
Disc (Wafer : Steatite)	14	3	1	18*	-
Disc (Micro:Steatite)	2	-	Present	2*	-
Tubular (Micro:Steatite)	53	-	7	60*	-
Tubular (Segmented: Steatite and faience)	-	-	4	4*	-
Tubular	37	10	43	90	4
Cone	-	-	2	2	-

Shapes	Period IA	Period IB	Period IC	Total	Surface
Bicone	1	5	52	58	1
Biconvex	5	4	31	40	1
Plano-convex	-	-	1	1	-
Convex	-	-	1	1	-
Concave	-	-	3	3	-
Barrel	7	7	105	119	1
Clindrical	1	3	18	22	-
Globular	1	-	1	2	-
Spherical	-	-	3	3	-
Cubical	-	-	3	3	-
Pendant	1	1	7	9	-
Arecanut-shaped	-	-	3	3	-
Vase-shaped	-	-	2	2	-
Collared	-	-	1	1	-
Shouldered Dholki	-	-	1	1	-
Total	309	110	631	1050	12

2. Hoards

Besides stray finds of beads, hoards of beads are also recovered from the excavations. While the stray finds of beads have their own place of pride in the cultural *milieu*, the discovery of hoards of beads in the stratified context are replete with far more significance.

The excavation has yielded ten hoards in all, out of which three hoards are of carnelian, six of steatite (Pl. LXVII) and the remaining one is that of copper which, however, also contains a few bangles of copper and a few beads of other materials like shell, agate or black jasper. It may be pointed out that majority of the hoards have come from the mid-levels of the last sub-period (Period I C) of the Harappan occupation of the site.

BEADS HOARDS

S.No.	Reg. No.	Material	Period	Total Nos.	Remarks
1.	1106	Carnelian	IC (mid-level)	30	Found in a pot along with a copper piece and an ivory pendant.

* This total does not include the statistics in respect of those beads of steatite which formed the hoards bearing Nos. SKTD-116(2000) & SKTD-1652(1000).

S.No.	Reg. No.	Material	Period	Total Nos.	Remarks
2.	1752	Carnelian	IC (mid-level)	15	Found in a pot.
3.	116	Carnelian	IC (mid-level)	49	Found in a pot at the top of layer 3 along with a hoard of steatite beads placed under a small sandstone slab.
4.	116/A	Steatite	IC (mid-level)	about 2000	Found in a pot at the top of layer 3 alongwith a hoard of Carnelian beads placed under a small sandstone slab.
5.	1652	Steatite	IC (mid-level)	about 1000	Found alongwith a few beads of carnelian and faience.
6.	1766	Steatite	IC (early level)	277	—
7.	1077	Statite	IA (early level)	30	—
8.	1488	Steatite	IA (late level)	66	—
9.	2002	Steatite	IB (early level)	59	—
10.	2286	Copper	IC (mid-level)	Could not be numbered as it has been found in the form of lump with only a few detatched ones.	It contains beads and bangles of copper, besides beads of black jasper, agate and shell. Copper beads are predominant, followed by copper bangles.

Do they represent the sociological upheavals leading to a sudden psychological spurt in the possessive temperament of the human beings of the times? Or else, do they indicate some natural or human catastrophie resulting in the abrupt abandonment of their most prized treasures? Natural calamities like fire or flood are not evidenced during this time of the period. Human catastrophies like war and destruction are also not documented so far.

3. Some special features of the beads of different materials may be given as below:

(i) Steatite

As pointed out earlier, the large number of beads are made of steatite. Besides this, the largest number of hoards are also of this material. It is quite significant to note that steatite beads are forthcoming from all the levels of the Periods I A, I B and IC. The

shapes represented are: disc, tubular, micro-tubular, segmented tubular, cylindrical barrel, biconvex and a pendant. Amongst these, the most popular shape seems to be the 'disc', which, however, resolves itself into the following types:

i) Thin disc bead (wafer);

ii) Thick small disc bead (cylindrical shaped); and

iii) Micro-disc bead.

Barring the statistics of the hoards of steatite, the predominant type amongst the disc-shaped beads was the 'thick small disc bead (cylindrical-shaped)', followed by tubular beads of all sizes. In other words, if taken on the whole (i.e., the Periods I A, I B and I C), the disc-shaped beads easily outnumber other shapes; but when we study the statistical position of the shapes of the beads during Period I C, segmentel tubular beads (including hoards of the beads) comfortably outstrip all others. One aspect which is significant is that segmented tubular beads of steatite emerge in the early level of the Period I C of Surkotada.

Almost all the shapes found in steatite beads show resemblances with Harappan beads of steatite; the diagnostic types of some of which, however, may briefly be stated as below:

i) Micro-disc beads;

ii) Micro-tubular beads;

iii) Thins disc beads (wafer); and;

iv) Segmented tubular beads.

(ii) Faience

Out of a large assemblage of one thousand and fifty beads, there are only thirty faience beads. It is, however, not recovered from the earliest Period (Period I A) of Harappan occupation of the site of Surkotada. The shapes represented are: tubular, segmented tubular, biconvex, barrel and disc. The most popular type is 'tubular'. All the surface finds are also 'tubular'. The diagnostic Harappan type is the 'segmented tubular bead'. Like steatite, in faience too, the 'segmented tubular beads' emerge during the early levels of the Period I C.

(iii) Carnelian

Carnelian, amongst the semiprecious materials, has accounted for the largest number of beads. While it is profuse (109 beads) during the last period (Period I C) of the occupation of the site of Surkotada, it is represented only by two specimens each in Period I A and Period I B respectively. It may be added that carnelian is associated right from the early level of the Harappan occupation of the site. The shapes represented are: barrel, bicone, biconvex, tubular, disc and pendant. Amongst these, the barrel-shaped beads are predominant. While these shapes show general affinities with the Harappan beads, the single specimen of an 'exceptionally long barrel circular bead' (SKTD 199) is

characteristically Harappan and is reported from Lothal[1] Harappa[2], and Mohenjo-daro[3]. Vats writes thus: "Two very interesting beads of carnelian Nos. 49 and 129 (pl.CXXXI, 2, a and b) are the exceptionally long barrel beads. These beads are exactly similar in shape to some from Mesopotamia; but the latter are shorter, rarely exceeding two inches in length, while No.129 from Harappa must have been over 7.5 cm. long and some from Mohenjo-daro are over five inches long. Sir Leonard Wooly, however, states that a very few similar beads from Ur are nearly 12.5 cm long."

Etched "eye-bead" of carnelian is yet another important characteristic Harappan feature. Both in shape and etched-pattern it shows a total similarity. As many as three specimens of this type of bead are available from Surkotada and all of them have come from the latest sub-period (Period I C) of Harappan occupation. In the excavations of Harappa, an eye-bead is reported but it has got only a single pattern of an eye-ball.[4] Similar beads are noticeable at Lothal,[5] too. Rao remarks: "....beads etched with concentric circles and a design resembling the figure '8' occur in Ur Early Dynastic III, Susa D, Kish Cemetery A, Tell Asmar, Hissar III C and Brak. Such beads are more numerous at Lothal than in any other site. As such, Lothal may be considered as the original centre where etching was developed"[6]. The significance of the etched carnelian beads of Surkotada lies in the fact that while it too yields two "double eyed-beads", designed with the figure '8', there is yet another specimen which depicts the "treble eyed pattern" designed with three sets of concentric circles.

Out of ten hoards of beads, three alone are of carnelian. Invariably, all of them have come from the mid-level of the last sub-period (Period I C) of the Harappan occupation. Amongst the semiprecious materials, carnelian is the only material which has yielded hoards. It testifies positively to its value.

Three beads, discovered from the different levels of the Period I C, showing various stages of manufacture, indicate that at least during this period of the Harappan occupation bead-making was a local industry.

(iv) Agate

The excavations have yielded in all fifteen beads of agate. They are recorded from all the periods of Harappan occupation of the site. All these beads are barrel shaped with circular, elliptical or lenticular sections.

Besides these fully finished beads, as many as eleven specimens, which are in different stages of manufacture, are also found. Out of a total of eleven such beads, ten specimens show fully developed barrel shaped or intended barrel shape with circular, elliptical or lenticular sections. The remaining specimen is an agate pebble.

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1 Rao: 1956-57, Pl. XXXVII, fig 28; Rao: 1962, Pl X, fig. 27.

2 Vats: 1940, p. 400, Pl CXXXI, fig. 2, a and b.

3 *ibid.*, p.400.

4 Vat: 1940, p. 401, Pl. CXXXI, fig 4, a.

5 Rao: 1956-57, Pl. XXXVII, fig. 28, Rao, 1961, Pl. X fig. 27,5.

6 *ibid.*, p 23.

Barrel shaped beads with circular, elliptical or lenticular sections are also available at Harappa and Mesopotamia[1]. An exceptionally long barrel circular bead of variegated agate discovered at Surkotada is yet another typical Harappan bead.

The total assemblage shows a wide range of materials. It seems that the Harappans at Surkotada had a flair for variety in the colours of the stones. Agate of the following hues are noted: blue, green, yellow, white, black, brown, and gray.

The selection of materials is so skilful that almost all the beads show remarkably beautiful and natural patterns. The specimens are so carefully cut from the original coloured shingles or pebbles that the patterns like zones or bands, chevrons with coloured bands, and eyes are proportionately balanced and fully represented. Particularly in the case of zone or band beads, the cutting of the coloured stone is so adroitly executed that the colour of the pattern at both the ends is exactly similar but totally dissimilar from that of the middle.

The agate beads from Surkotada also show polish of very high quality. As a matter of fact, the highly polished barrel beads of black and blue agate are among the finest finds from Surkotada.

Like Harappa[2], at Surkotada also a good number of unfinished beads of long barrel circular shape have been found. At Lothal such unfinished barrel shaped beads are stated to be meant possibly for inlay work in gold to serve as pendants. Such beads are also reported from Mesopotamia, where these are supposed to have served as weights.

Thus, in a variety of colours, the precision of pattern and quality of polish, the agate beads from Surkotada vie for grandeur with the Harappan beads.

(v) Jasper

It is represented only by five specimens in the stratified deposits. The sixth specimen is from the surface, which is an woody jasper. It may be mentioned that the earliest Period I A has not yielded any bead. Jasper beads are stated to be scarce in the Indus Valley and Lothal, too.

Out of the five specimens from the stratified deposits, one is green and one is black in colour while the remaining three are of dark brown colour. The green coloured specimen also shows bloodstone elements.

Among the excavated specimens, the predominant type is bicone followed by a cone bead and an exceptionally long barrel bead.

None of the excavated specimens show any pattern. It is only the surface specimen which shows a band pattern and is easily one of the finest finds from Surkotada.

The green jasper bead, discovered in the early level of Period I B, is not fully finished and perforated, which shows that bead making during this period was probably a local feature.

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[1] Vats: 1940, p. 399.

[2] *ibid.*

(vi) Lapis lazuli

It accounts for only nine beads spread over all the periods of Harappan occupation. However, it is the late level of Period I A which records its first occurrence at Surkotada. Only three specimens of *Lapis* beads are reported from Harappa[1]. At Lothal, too, there is a great paucity of beads of Lapis lazuli. The predominant shape in this material is tubular. Cylindrical is the other shape which is represented in this material.

(vii) Serpentine

It has yielded only three beads. Amongst these, the popular shape is tubular, followed by a single specimen of the convex bead. Besides these, two specimens are also available but they are unfinished specimens that have been unearthed from the mid-level of Period I A, which points out the possibility that serpentine was worked upon locally from the earliest periods of Harappa occupation. At Harappa, too, only three serpentine beads are reported[2].

(viii) Chalcedony

It is represented by one specimen only and that too, in the form of a pendant, which, though perforated, is in an unfinished stage. It has been recovered from the late level of Period I C of Surkotada.

(ix) Crystal

Three specimens of pellets of crystal from the stratified levels of Period I B and I C seem to represent the raw material for the manufacture of crystal beads. However, no crystal bead as such has been recorded from the stratified deposits of Surkotada. The only illustrated bead of crystal is a surface find and is biconvex in shape.

(x) Cherty-rock

Discovered in the mid-level of the Period I A it is a solitary specimen of a biconical bead of cherty-rock. Other levels of Surkotada have not yielded any other specimens

(xi) Sandstone

Four beads of sandstone are recovered from Surkotada. While only one specimen has come from the mid level of Period I B, all the remaining three specimens are recovered from the different levels of Period I C. The cylindrical shape predominates. Also, there is a single specimen of the arecanut shaped bead. The sandstone beads are noted for their crudeness.

(xii) Paste

Represented by a single specimen and recovered from the late level of Period I B is a biconvex bead of paste. No other specimens are available.

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[1] Vats. 1940, p. 403

[2] *ibid*

(xiii) Bone

Only two bone beads are found at Surkotada. One of the two specimens has come from the late level of Period I C. Its make up as a bead is uncertain. Another specimen, which has come from the mid-level of Period I A, is very fragile and broken and seems to be of disc shape. No other specimens are available.

(xiv) Shell

Shell accounts for twentytwo beads from Surkotada. They are spread over all the periods of Harappan occupation. The shapes represented are: disc (1), cubical (4), biconvex (2), cylindrical (5), spherical (3), tubular (1) and barrel (1) in various stages of manufacture. This, too, shows that shell working was a local industry.

(xv) Terracotta

Beads of terracotta from Surkotada are represented throughout various levels of Harappan occupation of the site. The shapes represented are plano-convex, arecanut shaped, barrel, concave, cylindrical, cone, globular, vase shaped, tubular, disc, bicone, biconvex and pendant. The bicone shape is predominant. Two specimens of terracotta beads are significant. The first of the two coming from the late level of Period I A is a biconvex bead with concentric circles of pricked dot designs, resembling similar beads from Kot Diji[1]. The second specimen, coming from an early levels of Period I C, is a gadrooned bicone bead. A terracotta bead is also reported from Lothal. This form is represented in faience at Rangpur[2]. Melon form of gadrooned-bead in faience is also reported from Harappan[3] sites. Mesopotamia is also reported to have yielded such beads[4].

(xvi) Copper

Period I A and I B of Surkotada are devoid of beads of copper. It is represented only in the mid-level of Period I C and is found in the form of a hoard. Four shapes are represented, viz., biconvex, barrel, cylindrical and collared. Beads of biconvex shape predominate.

4. *Technique (Chart)*

The excavations have yielded as many as twentyeight beads of different materials from different levels of the Harappan occupation that are in various stages of manufacture which suggests that beads of shell, chalcedony, agate, terracotta, crystal, carnelian, steatite, jasper and serpentine were probably manufactured locally. The discovery of several specimens of columnella without shell covering - a few of them are sawn through - and chips of the outer covering of the shells go on to prove that bead-making of shell was a local affair. Besides these, many specimens of chips of jasper, carnelian and crystal are also found during the course of excavations. These also corroborate their local

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[1] Khan: 1965., Pl. XXIX, Nos. 15, 16 and 18.

[2] Rao: 1962, p. 146, fig. 53, 23, Pl. XXXIII, 18.

[3] Vat: 1940, p. 406

[4] *ibid.*

manufacture. Tools and equipments like drill and chisel of copper, crucibles and flat sandstone slab with multiple channelled grooves, also positively affirms the assumption that bead making on a variety of materials at Surkotada was a local industry.

TECHNIQUE

S.No.	Reg.No.	Material	Period	Shape	Remarks
1.	1681	Shell	I A (Mid-level)	Disc	Finished but unperforated
2.	2192/2	"	I C (Mid-level)	Cubical	Unfinished and unperforated
3.	1767	"	I C (Late level)	"	"
4.	654	"	I C (Late level)	"	Finished but unperforated
5.	195	Chalcedony	I C (Late level)	Pendant	Unfinished but perforated
6.	1254	Agate	I B (Early level)	Intended to be barrel-shped.	Unfinished and unperforated
7.	1267	"	I B (Early level)	"	"
8.	92	"	I B (Mid-level)	Barrel	Finished but unperforated
9.	80	"	I B (Late level)	"	"
10.	373	"	I C (Early level)	Long truncated barrel shaped elliptical; ova-loid in section	"
11.	380	"	I C (Early level)	Barrel	"
12.	1006	"	I C (Early level)	-	Raw-material (Pebble)
13.	224	"	I C (Mid-level	Barrel	Finished but unperforated
14.	463	"	I C (Mid-level)	"	"
15.	351	"	I C (Late level)	Intended to be barrel shaped.	Unfinished and unperforated
16.	2152	"	Surface	"	"
17.	354	Terracotta	I A (Mid-level)	Globular	Finished but unperforated
18.	366	Crystal	I B (Early level)	-	Raw material (pellet)
19.	336	"	I C (Late level)	-	"
20.	1831	"	I C (Late level)	-	"
21.	1652/2	Carnelian	I C (Mid-level)	Intended to be barrel shaped	Unfinished and unperforated
22.	1752/10	"	I C (Mid-level)	Barrel	Finished but unperforated
23.	1666	"	I C (Late level)	Disc	Perforated but not finished

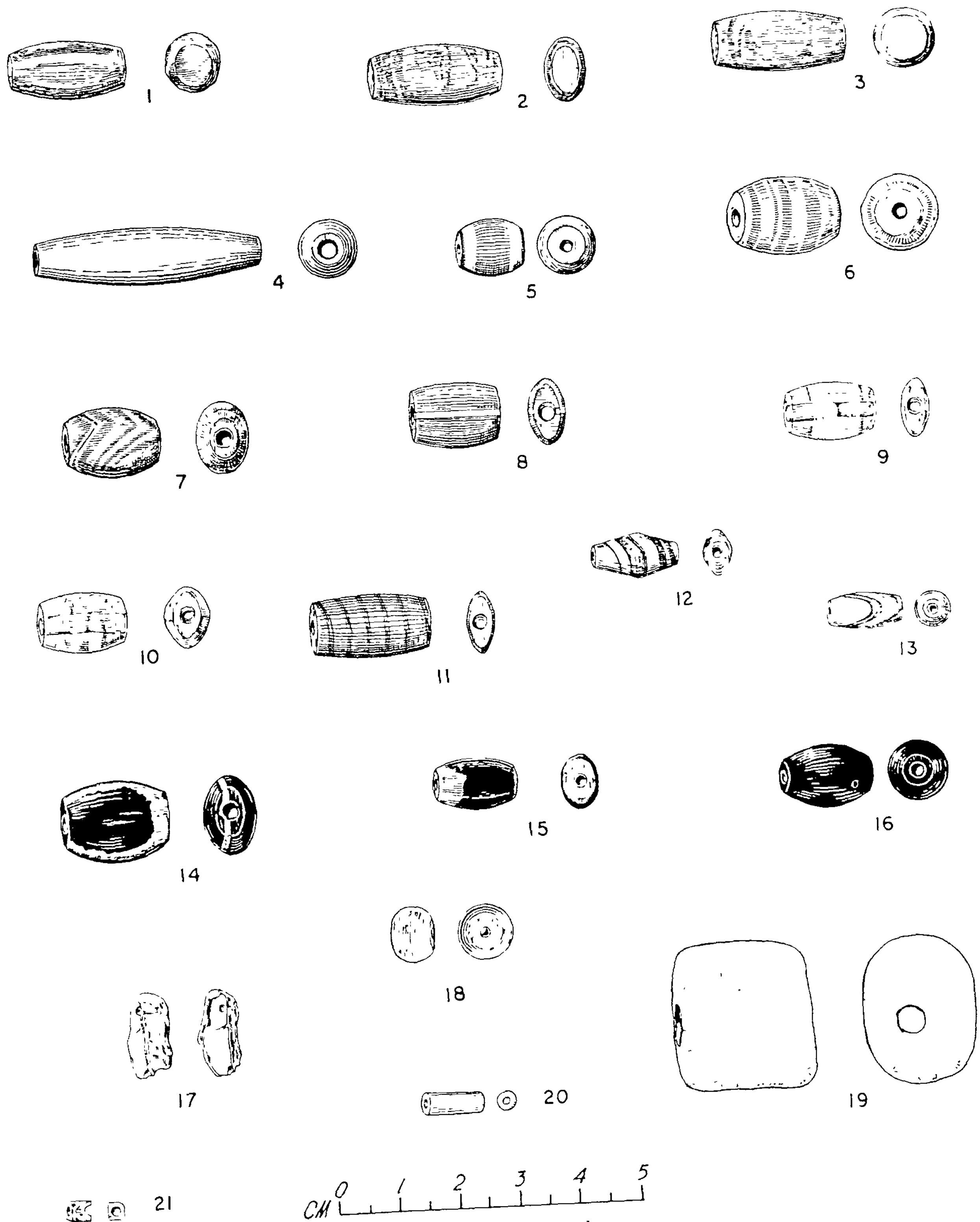


Fig 74. Beads

S.No.	Reg.No.	Material	Period	Shape	Remarks
24.	638	Steatite	I A (Late level)	-	Lump (?)
25.	718	"	I C (Mid-level)	-	Broken, tubular piece
26.	1502	Green jasper	I B (early level)	Barrel	Half perforated from one side; not fully finished
27.	1705	Serpentine	I C (Mid-level)	Intended to be cylindrical	Unfinished and unperforated
28.	1543	"	I A (Mid-level)	Intended to be tubular	"

V *General Observation*

The above study convincingly reveals that the entire assemblage is patently typical and thoroughly representative and has got extensive parallels with Harappa, Lothal and other Indus valley sites in India, both in respect of types as well as materials. This revealation can conveniently be gauged from the following diagnostic types of the Harappan beads available at Surkotada:

i) Micro-disc bead (Steatite),

ii) Micro-tubular bead (Steatite),

iii) Thin disc bead: Wafer (Steatite),

iv) Segmented tubular bead (Steatite),

v) Segmented tubular bead (Faience),

vi) Exceptionally long barrel circular bead (Carnelian),

vii) Etched 'eye-bead' (Carnelian),

viii) Barrel-shaped beads with circular and elliptical or lenticular sections (Agate),

ix) Exceptionally long, circular barrel variegated bead (Agate), and

x) Gadrooned bead (Terracotta).

Beads from Surkotada are also comparable with similar beads from sites outside India, e.g., Kot Diji and sites in Western Asia. They are described below:

Fig. 74; Pl. LXVIII

1. Agate long truncated circular barrel; eye-pattern; unperforated. From a mild-level of Period I C (SKTD-463).

2. Agate long truncated barrel-shaped elliptical; ovaloid in section; zone band pattern; unperforated. From an early level of Period I C (SKTD-373).

3. Agate long truncated circular barrel shape; zone-patterned; unperforated. From a mid-level of Period I B (SKTD-92).

4. Variegated agate Exceptionally long, truncated circular barrel. From a mid-level of Period I B (SKTD-2180).

5. Agate Standard truncated circular barrel; zone-pattern; highly polished. From a mid-level of Period I B (SKTD-2174).

6. Agate long truncated circular barrel, band pattern. From a mid-level of Period I A (SKTD-141).

7. Agate long truncated barrel shaped elliptical; ovaloid in section; chevron pattern with coloured bands. From a mid-level of Period I C (SKTD-1987).

8. Agate long truncated elliptical-shaped barrel; ovaloid in section; band-pattern. From a late level of Period I C (SKTD-802).

9. Agate long truncated elliptical shaped barrel; ovaloid in section; zone, band pattern. From a late level of Period I A (SKTD-545).

10. Agate long truncated elliptical shaped barrel; ovaloid in section; band pattern. From a late level of Period I B (SKTD-206).

11. Agate long truncated elliptical shaped barrel; lenticular in section; band pattern. From a late level of Period I A (SKTD-1495).

12. Agate long truncated elliptical shaped bicone; ovaloid in section; wavy band pattern. From a mid-level of Period I A (SKTD-134).

13. Agate long truncated circular barrel, ripple band pattern. From a mid-level of Period I C (SKTD-1464).

14. Agate long truncated, elliptical shaped barrel; ovaloid in section; band-pattern. From a late level of Period I B (SKTD-212).

15. Agate long truncated elliptical shaped barrel; ovaloid in section; zone-pattern. From a late level of Period I A (SKTD-1496).

16. Agate long truncated circular barrel. From an early level of Period I C (SKTD-2285).

17. Chalcedony drop pendant with perforation, roughly rectangular in shape; unfinished. From a late level of Period I C (SKTD-195).

18. Paste long truncated circular biconvex. From a late level of Period I B (SKTD-378).

19. Lapis lazuli standard truncated oblate cylindrical. From a late level of Period I C (SKTD-2282).

20. Lapis lazuli long truncated circular tubular. From a late level of Period I A (SKTD-2283).

21. Lapis lazuli long, truncated cylindrical planoconcave, broken; it has assumed a roughly rectangular outline. From a late level of Period I A (SKTD-543).

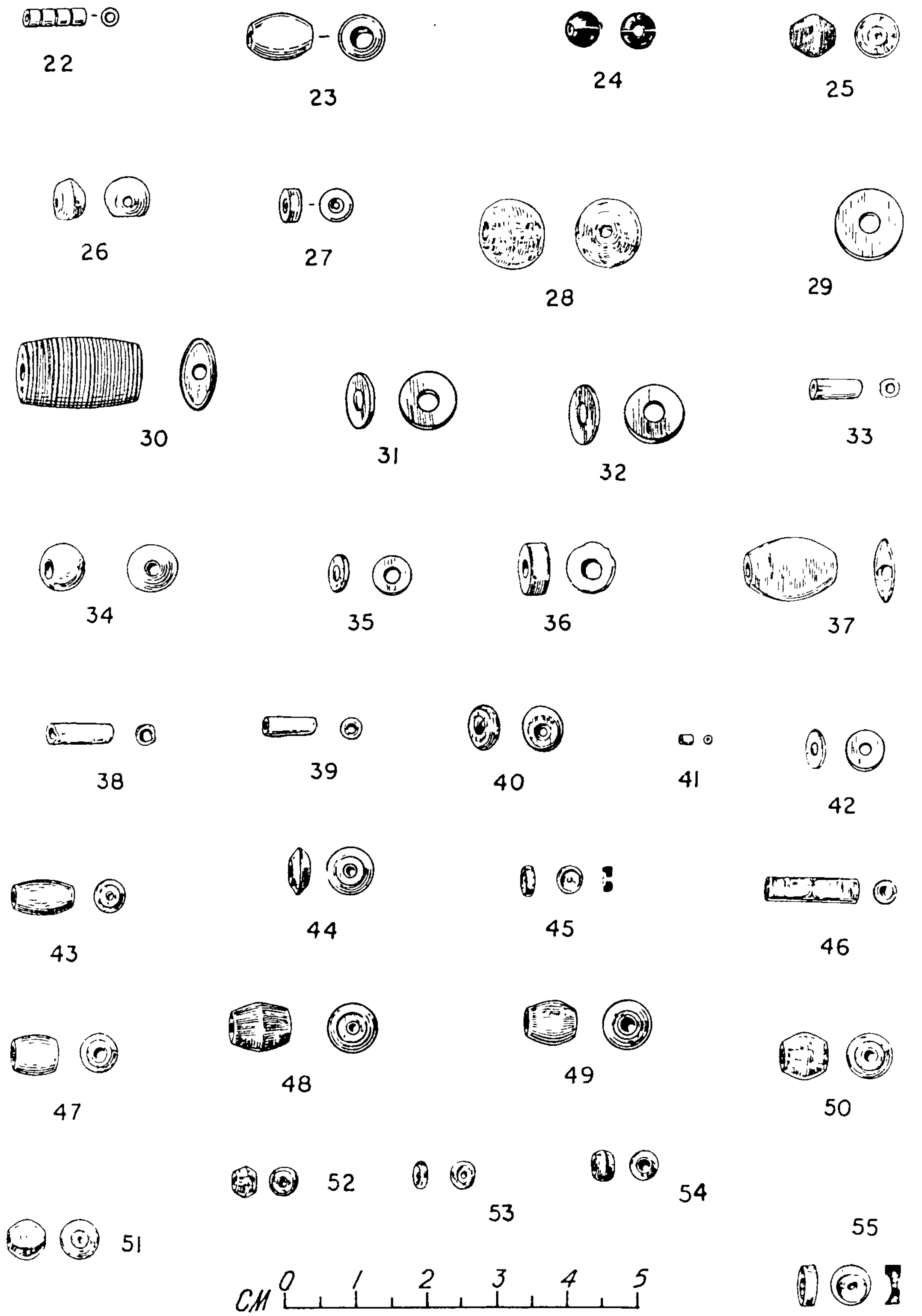

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Fig. 75. Beads

Fig.75; Pl. LXIX

22. Steatite long circular truncated tubular segmented. From a mid-level of Period I C (SKTD-1652).

23. Carnelian long circular truncated barrel. From an early level of Period I B (SKTD-1770).

24. Cherty rock standard circular truncated biconvex. From a mid-level of Period I A (SKTD-2281).

25. Black jasper standard circular truncated bicone. From an early level of Period I C (SKTD-1845).

26. Brown jasper standard circular truncated bicone. From a late level of Period I C (SKTD-606).

27. Carnelian short circular truncated disc. From an early level of Period I A (SKTD-1339).

28. Crystal standard circular truncated biconvex. From surface (SKTD-787).

29. Steatite short circular (wafer) disc. From an early level of Period I A (SKTD-500).

30. Wood jasper long barrel shaped truncated elliptical; lenticular in section; band-pattern; highly polished. From surface (SKTD-902).

31. Steatite short circular (wafer) disc. From a mid-level of Period I A (SKTD-1510).

32. Steatite short circular (wafer) disc. From an early level of Period I A (SKTD-501).

33. Steatite long truncated circular tubular. From a late level of Period I C (SKTD-2234).

34. Steatite standard truncated circular biconvex. From an early level of Period I C (SKTD-78).

35. Steatite short circular (wafer) disc. From a mid-level of Period I B (SKTD-145).

36. Steatite short truncated cylindrical shaped disc, circular. From a mid-level of Period I C (SKTD-1754).

37. Steatite long truncated elliptical-shaped barrel; lenticular in section. From a late level of Period I A (SKTD-1508).

38. Steatite long truncated circular tubular. From a late level of Period I C (SKTD-2237).

39. Steatite long truncated circular tubular. From a mid-level of Period I A (SKTD-2038).

40. Steatite short truncated circular biconvex. From a late level of Period I B (SKTD-206).

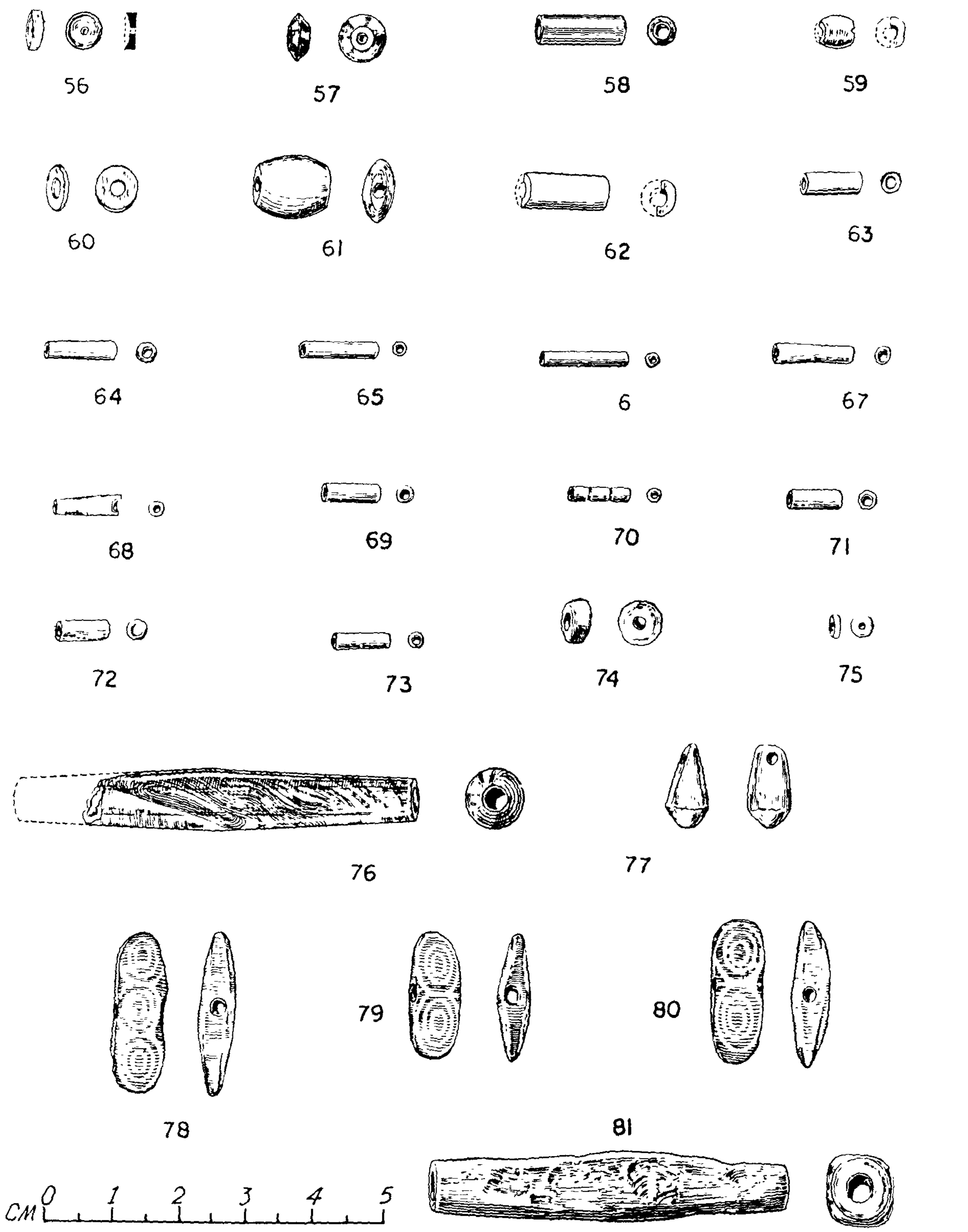

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Fig. 76. Beads

41. Steatite long truncated circular microscopic tubular. From an early level of Period I C (SKTD-1966).

42. Steatite short circular (wafer) disc. From an early level of Period I A (SKTD-2078).

43. Carnelian long truncated barrel circular. From an early level of Period I C (SKTD-2162).

44. Carnelian short truncated circular bicone. From a mid-level of Period I C (SKTD-1752/2).

45. Carnelian tiny short truncated circular bicone. From a mid-level of Period I C (SKTD-1665).

46. Carnelian long truncated circular tubular. From surface (SKTD-701).

47. Carnelian long truncated circular barrel. From a mid-level of Period I C (SKTD-1752/3).

48. Carnelian long truncated circular bicone. From a mid-level of Period I C (SKTD-1732).

49. Carnelian long truncated, circular barrel. From a mid-level of Period I C (SKTD-268).

50. Carnelian long truncated circular barrel. From a mid-level of Period I C (SKTD-2163).

51. Carnelian standard truncated circular barrel. From a mid-level of Period I C (SKTD-189).

52. Carnelian standard truncated circular bicone. From a mid-level of Period I C (SKTD-1752/6).

53. Carnelian short truncated cylindrical shaped circular disc. From surface (SKTD-692).

54. Carnelian standard, truncated, circular bicone. From a mid-level of Period I C (SKTD-1752/4).

55. Carnelian short plano-concave disc. From a mid-level of period I C (SKTD-1752/5).

Fig. 76; Pl. LXX

56. Carnelian short plano-concave disc section. From a late level of Period I C (SKTD-1058).

57. Carnelian short truncated circular bicone. From a late level of Period I C (SKTD-1752/1).

58. Carnelian long truncated circular tubular. From a late level of Period I C (SKTD-1838).

59. Serpentine long truncated circular convex; broken. From an early level of Period I C (SKTD-209).

60. Steatite short circular disc (wafer). From a mid-level of Period I A (SKTD-571).

61. Faience long truncated barrel shaped elliptical; lenticular in section. From an early level of Period I B (SKTD-343).

62. Serpentine long truncated circular tubular; broken. From a mid-level of Period I C (SKTD-169/1).

63. Serpentine long truncated circular tubular. From a mid-level of Period I C (SKTD-41).

64. Faience long truncated circular tubular. From an early level of Period I C (SKTD-1416).

65. Faience long truncated circular tubular. From an early level of Period I C (SKTD-1188).

66. Faience long truncated circular tubular. From a late level of Period I C (SKTD-2284/A).

67. Faience long truncated circular tubular. From a mid-level of Period I B (SKTD-310).

68. Faience long truncated circular tubular; broken. From a mid-level of Period I C (SKTD-169/2).

69. Faience long truncated circular tubular. From a mid-level of Period I C (SKTD-1954).

70. Faience long truncated circular segmented tubular. From an early level of Period I C (SKTD-1665).

71. Faience long truncated circular tubular. From a late level of Period I C (SKTD-784).

72. Steatite long truncated circular tubular. From an early level of Period I A (SKTD-2042).

73. Faience long truncated circular tubular. From an early level of Period I B (SKTD-2213).

74. Faience short truncated circular biconvex. From an early level of Period I C (SKTD-468).

75. Faience tiny short circular disc. From a mid-level of Period I C (SKTD-470).

76. Carnelian exceptionally long circular truncated barrel; broken. From a late level of Period I B (SKTD-299).

77. Carnelian ovoid drop pendant, top rounded, pointed end; perforated at the top. From a mid-level of Period I C (SKTD-1646).



Fig. 77. Beads

78. Etched carnelian short lenticular biconvex etched 'treble-eyed pattern' designed with three sets of triple concentric circles. From a mid-level of Period I C (SKTD-2276).

79. Etched carnelian short lenticular biconvex etched 'double-eyed pattern,' designed with two sets of triple concentric circles resembling the figure '8'. From an early level of Period I C (SKTD-381).

80. Etched carnelian short lenticular biconvex, etched 'double-eyed pattern' designed with two sets of triple concentric circles resembling the figure '8'. From a mid-level of Period I C (SKTD-1984).

81. Green jasper exceptionally long truncated barrel, squarish; half-perforated from one side; not fully finished. From an early level of Period I B (SKTD-1502).

Fig. 77

82. Agate long truncated circular barrel. From a mid level of Period I C (SKTD-2286/E).

83. Copper long truncated circular barrel. From a mid-level of Period I C (SKTD-2286/B).

84. Shell standard truncated circular barrel. From an early level of Period I C (SKTD-1336).

85. Copper long truncated circular cylindrical. From a mid-level of Period I C (SKTD-2286/D).

86. Copper long truncated circular cylindrical. From a mid-level of Period I C (SKTD-2286/C).

87. Shell short truncated circular cylindrical. From a mid-level of Period I C (SKTD-401).

88. Shell standard truncated roughly circular tubular. From an early level of Period I B (SKTD-1493).

89. Shell standard truncated circular cylindrical. From a mid-level of Period I C (SKTD-2129).

90. Shell standard, circular biconvex; truncated at one end and concave at the other. From a late level of Period I C (SKTD-1746).

91. Shell drop-pendant; oriel shaped shaft-hole. From an early level of Period I B (SKTD-218).

92. Copper collared long circular barrel. From a mid-level of Period I C (SKTD-2286 A).

93. Shell pendant; short truncated circular cylindrical. From a late level of Period I C (SKTD-302).

94. Black jasper long truncated circular cone. From a mid-level of Period I C (SKTD-2286/F).

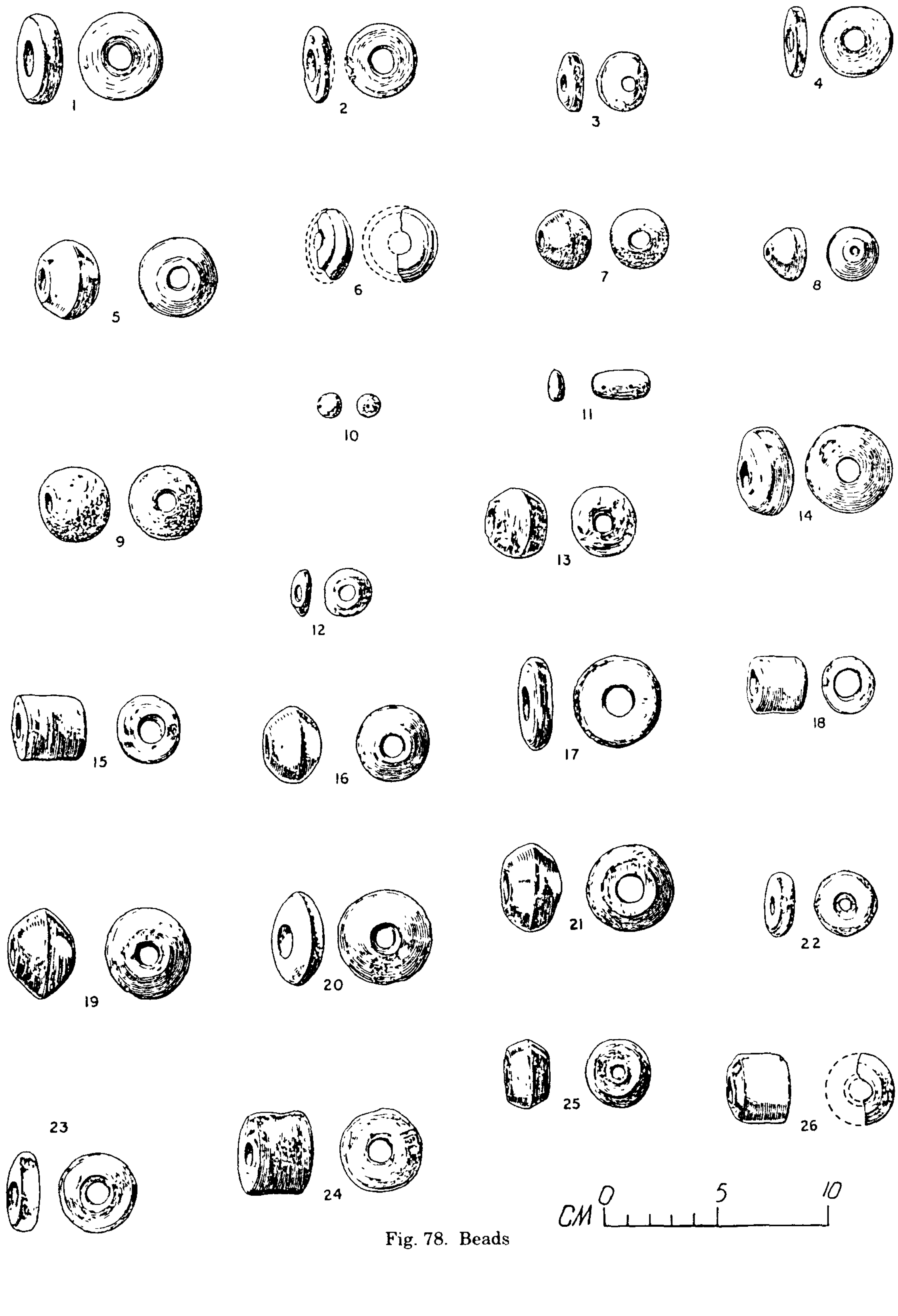


Fig. 78. Beads

95. Pendant; Short truncated circular cylindrical. From a mid-level of Period I C (SKTD 2056).

96. Shell pendant (?), tiny chank-shell (Piala); partly perforated; purported to be used probably as a drop pendant. From a mid-level of Period I C (SKTD-60).

97. Shell short truncated circular biconvex. From a mid-level of Period I C (SKTD 7).

98. Shell shouldered, circular *dholki*. From a mid-level of Period I C (SKTD 2286 G).

99. Shell spherical circular. From a mid-level of Period I C (SKTD-10).

100. Shell cube. From a late level of Period I C (SKTD-654).

Fig. 78.

1. Terracotta short truncated disc; plano-convex in section. From a mid-level of Period I C (SKTD-151).

2. Terracotta short truncated circular disc. From a late level of Period I B (SKTD-2092).

3. Terracotta short roughly circular plano-convex. From a mid-level of Period I C (SKTD-240).

4. Terracotta short truncated disc; plano-concave in section. From a late level of Period I A (SKTD-755).

5. Terracotta short truncated circular biconvex. From an early level of Period I C (SKTD-1439).

6. Terracotta vase shaped circular. From a mid-level of Period I C (SKTD-1862).

7. Terracotta short truncated circular biconvex; decorated with concentric circles of pricked dot designs. From a late level of Period I A (SKTD-83).

8. Terracotta arecanut shaped circular. From a mid-level of Period I C (SKTD-1855).

9. Terracotta long truncated circular barrel; shallow grooves along the periphery. From a mid-level of Period I C (SKTD-893).

10. Terracotta globular circular. From an early level of Period I C (SKTD-1102).

11. Terracotta elliptical drop-pendant with two holes. From a mid-level of Period I B (SKTD-11799).

12. Terracotta short truncated disc; plano-convex in section. From a late level of Period I B (SKTD-2088).

13. Terracotta short truncated circular bicone. From a late level of Period I C (SKTD-1224)

14. Terracotta short truncated, circular biconvex. From an early level of Period I C (SKTD-1736).

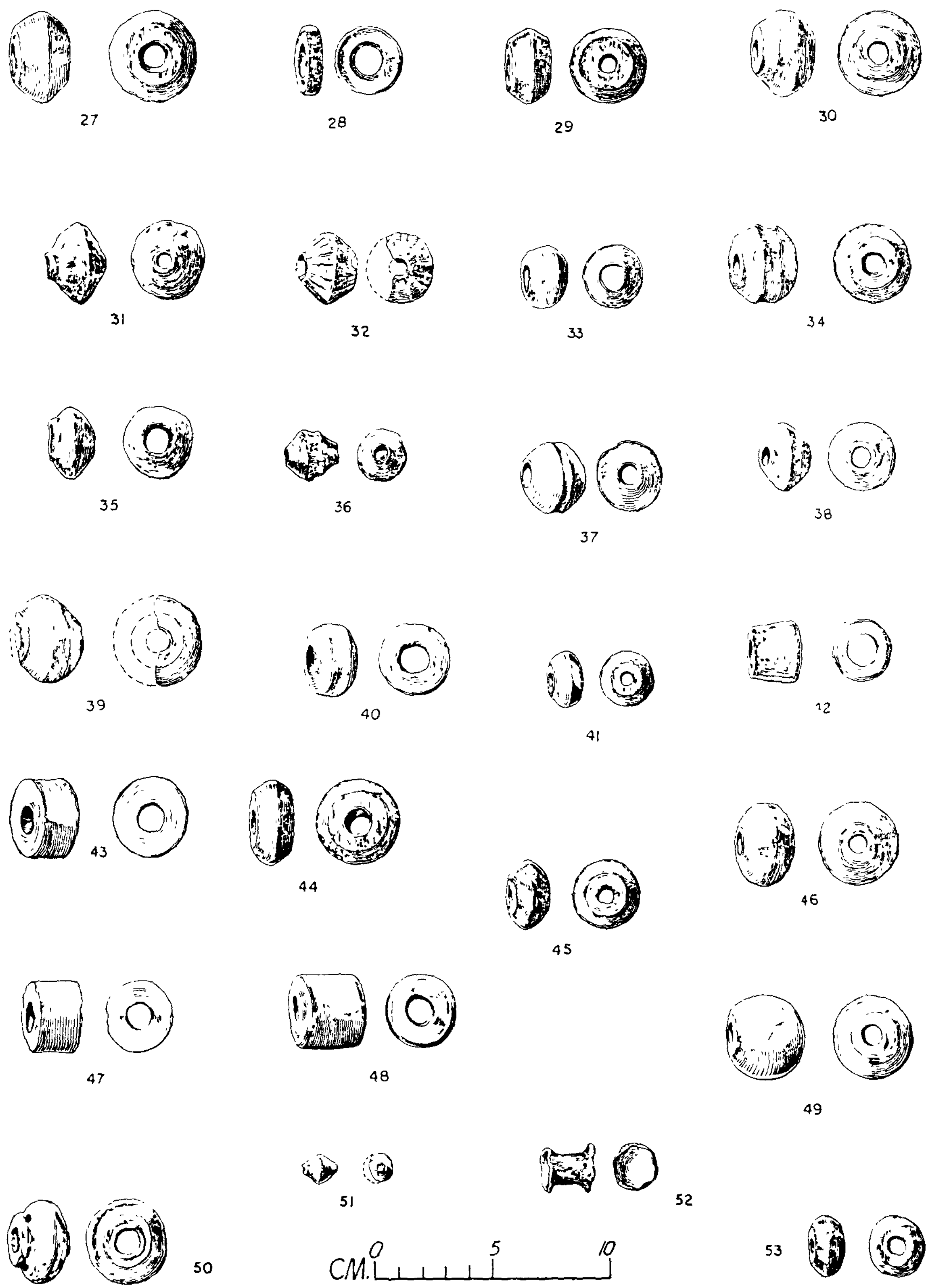

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Fig 79. Beads

15. Terracotta standard circular cylindrical. From a late level of Period I B (SKTD-1468).

16. Terracotta short truncated circular bicone. From an early level of Period I B (SKTD-1686).

17. Terracotta short truncated circular disc. From a mid-level of Period I C (SKTD-1922).

18. Terracotta standard circular cylindrical; a gentle concavity along the periphery. From a mid-level of Period I C (SKTD-804).

19. Terracotta short truncated circular bicone. From a mid-level of Period I C (SKTD-1902).

20. Terracotta short truncated circular bicone. From a mid-level of Period I C (SKTD-2054).

21. Terracotta short truncated circular bicone. From a late level of Period I C (SKTD-61).

22. Terracotta short truncated circular disc. From a mid-level of Period I C (SKTD-1982).

23. Terracotta short truncated circular disc. From a late level of Period I C (SKTD-1489).

24. Terracotta short truncated circular cylindrical with a gentle concavity along the periphery. From an early level of Period I C (SKTD-1907).

25. Terracotta short truncated circular bicone. From an early level of period I C (SKTD-840).

26. Terracotta long truncated circular cylindrical with one end convex. From a late level of Period I C (SKTD-769).

Fig. 79

27. Terracotta short truncated circular bicone. From a mid-level of Period I C (SKTD-159).

28. Terracotta short truncated circular disc. From a mid-level of Period I C (SKTD-714).

29. Terracotta short truncated circular bicone. From a mid-level of Period I C (SKTD-2063).

30. Terracotta short truncated circular biconvex. From an early level of period I C (SKTD-1742).

31. Terracotta short circular bicone. From a late level of Period I B (SKTD-1579).

32. Terracotta gadrooned; short truncated circular bicone. From an early level of Period I C (SKTD-180/1).

33. Terracotta short truncated circular biconvex. From an early level of Period I A (SKTD-1505).

34. Terracotta short truncated circular biconvex with a broad concave band along the periphery. From a mid-level of Period I C (SKTD-1928).

35. Terracotta short circular bicone. From a late level of Period I B (SKTD-300).

36. Terracotta long circular biconvex. From a late level of Period I C (SKTD-1354).

37. Terracotta short truncated circular biconvex with a narrow, concave band along the periphery. From a mid-level of Period I C (SKTD-798/A).

38. Terracotta short truncated circular biconvex; narrow flat band at the periphery. From a mid level of Period I C (SKTD-798/B).

39. Terracotta standard truncated circular biconvex with a broad flat band along the periphery; broken. From a mid-level of Period I C (SKTD-1815).

40. Terracotta short truncated circular biconvex with a broad flat band along the periphery. From a mid-level of Period I C (SKTD-1382).

41. Terracotta short truncated circular bicone. From a mid-level of Period I C (SKTD-1924).

42. Terracotta long truncated circular cone. From an early level of Period I C (SKTD-1812).

43. Terracotta short truncated cylindrical circular with red slipped surface. From a mid-level of Period I C (SKTD-829).

44. Terracotta short truncated circular bicone. From a mid-level of Period I C (SKTD-1646).

45. Terracotta short truncated circular bicone. From a late level of Period I C (SKTD-828).

46. Terracotta short truncated circular biconvex. From a late level of Period I B (SKTD-1618).

47. Terracotta short truncated circular cylindrical with a gentle concavity along the periphery. From a mid-level of Period I C (SKTD-1409).

48. Terracotta standard truncated circular cylindrical with a gentle concavity along the periphery. From a mid level of Period I C (SKTD-1301).

49. Terracotta standard truncated circular barrel. From a mid-level of Period I C (SKTD-2225).

50. Terracotta vase shaped circular. From a late level of Period I C (SKTD-236).

51. Terracotta long circular bicone. From a late level of Period I B (SKTD-691).

52. Terracotta pulley shaped circular concave, probably used as an ear-ornament. From an early level of Period I C (SKTD-1777).

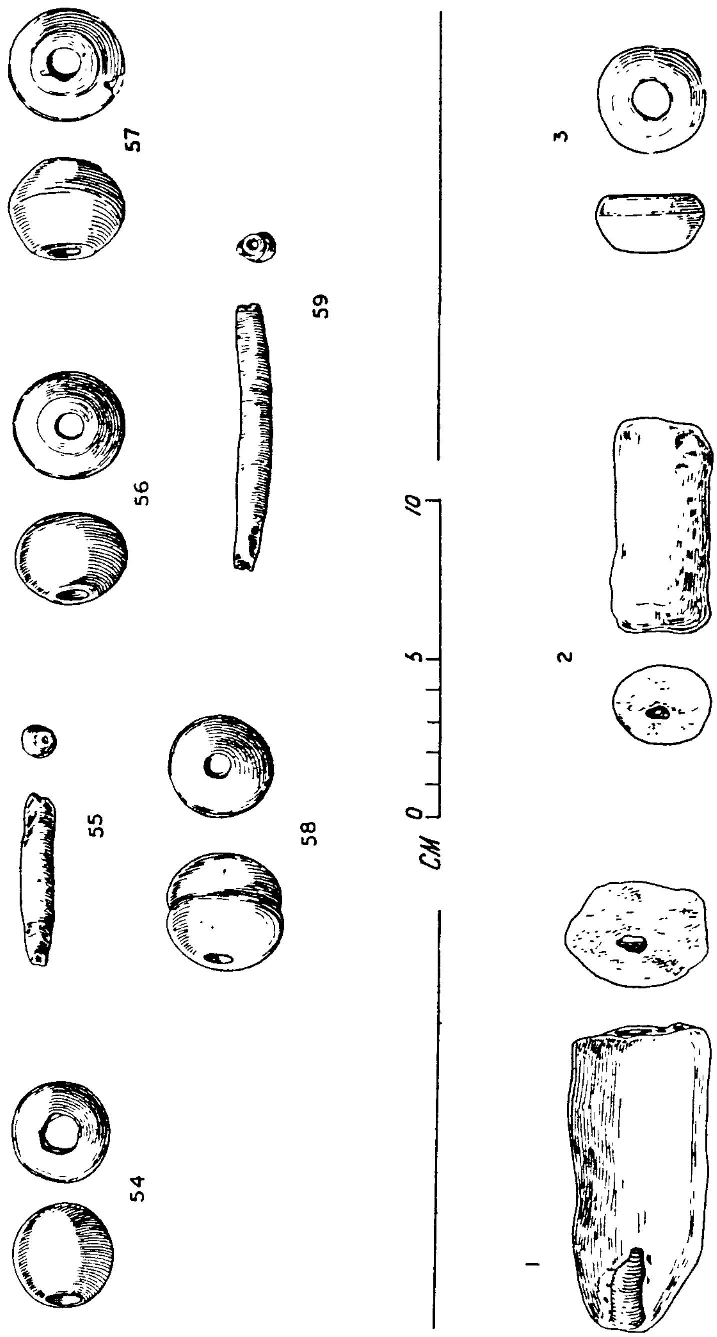


Fig. 80. Beads

53. Terracotta short truncated circular bicone. From a mid-level of Period I C (SKTD-816).

Fig. 80 (upper half)

54. Terracotta standard truncated circular barrel. From a late level of Period I C (SKTD-1886).

55. Terracotta long truncated roughly tubular circular. From a late level of Period I C (SKTD-858).

56. Terracotta short truncated circular biconvex. From a mid-level of Period I C (SKTD-1905).

57. Terracotta short truncated circular bicone. From mid-level of Period I C (SKTD-551).

58. Terracotta standard truncated circular barrel with a shallow and broad grove along the periphery. From a mid-level of Period I C (SKTD-1278).

59. Terracotta long truncated roughly tubular circular; washed with red-ochre; bears fingure impressions. From a late level of Period I B (SKTD-1180).

Fig. 80 (lower half)

1. Sandstone long roughly circular cylindrical with one end convex. From a mid-level of Period I C (SKTD-1733).

2. Sandstone long truncated cylindrical ovaloid. From a mid-level of Period I B (SKTD-310).

3. Sandstone arecanut shaped, circular, complete specimen with flat base, carinated profile and truncated top. From an early level of Period I C (SKTD-523).

H. WEIGHTS AND MEASURES

The evidence of available weights and scales (pans) at Surkotada indicates the prevalence of weights and measures as those in other Harappan sites. But number of weights at Surkotada is extremely less as compared to that reported at Harappa and Mohenjodaro.

At Surkotada seven weights made of stones and two weighing pans of terracotta have been reported. Out of the seven, Period I B has yielded four and Period I C three. None has been found in Period I A. Of the two weighing pans, one is found in Period I A and the other from Period I C.

Weights at Surkotada have been prepared from banded chert, jasper, white-spotted granite and steatite. They have been prepared by chipping and grinding the edges to form and polishing them to extreme brightness. The soft shining surfaces of the weights of spotted granite and banded chert indicates the finest skill of the craftsmen of those times.

The smallest weight of banded chert has been prepared in a very artistic and beautiful manner by cutting the stone with the band at the centre. Very likely it has been used for weighing jewellery made of gold, silver, copper, etc.

Weights at Surkotada, according to their shapes can be divided into two groups:

1. Cube shaped : 4 Nos.
2. Rectangular shaped : 3 Nos.

Other shapes, such as barrel, spherical, cylindrical and cone are absent at Surkotada, though they occur in large numbers at Harappa and Mohenjo-daro.

Some of the weights found here have identical weight as those reported from Harappa, especially of the cube variety. Some are of the same material and are equal in measurements. This reveals the similarity and identical nature and standard of weights and measures in various sites of Harappan culture.

Out of the two scale pans, one is complete with two perforations for connecting the thread. Similar one at Mohenjodaro[1] has three perforations at its sides for threading. The other scale-pan is a broken specimen of oval shape and has a single perforation extant.

The following are the weights and scale (pans) described:

Pl. LXXI A

1. Medium-grained coarse sandstone cubical weight having remnants of polish on surface with worn out sides and edge perhaps due to use. Weight 31.8 gm, length 3 cm, width 2.6 cm, thickness 2 cm. From a late level of Period I B (SKTD-1554).

2. Chert cubical weight, beautifully polished, having bands and possessing a shiny surface with a slightly broken edge. Similar cubes of chert of equal weight have been reported from Harappa[2], Mohenjodaro[3] and Chanhudaro[4]. Weight 27.2 gm; size 2.3 x 2.3 x 1.8 cm. From a mid-level of Period I C (SKTD-1380).

3. Fine-grained grey sandstone rectangular weight having a smooth polished surface. Undamaged. Weight 26.8 gm, size 3.0x 2.6 x 1.2 cm. Similar ones of the same material and equal weight have been found at Harappa[5] and of other materials at Mohenjodaro[6] and Chanhudaro.[7] From an early level of Period I C (SKTD-1659).

4. Black jasper rectangular weight is slightly broken and has a polished surface. Weight 27.7 gm; size 2.8 x 2 x 1.7 cm. From a late level of Period I B (SKTD-74).

5. White specked granite cubical weight bears polished and shiny surface. Weight 13.8 gm; size 1.9 x 1.5 x 1.4 cm. Identical one of granite and equal weight has been reported at Harappa[8] and those of other material from Mohenjodaro[9] and Chanhudaro.[10] From a late level of Period I B (SKTD-164).

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[1] Mackay: 1938, p. 435; pl. CIX. 32.
[2] Vats: 1940, p. 364.
[3] Marshall: 1931, p 597.
[4] Mackay: 1943, p. 238
[5] Vats 1940, p. 363, Wt. No. 525.
[6] Marshall. 1931, p 597, No. DK. 183.
[7] Mackay: 1943, p. 238. No. 1737.
[8] Vats: 1940, p. 364, No AF. 94.
[9] Marshall: 1931, p. 597, No. VS. 2074.
[10] Mackay 1943, p. 238, Nos 3692, 2592.

6. White steatite rectangular weight is a nearly complete specimen. Weight 6.2 gm.; size 1.2 x 1.1 x 0.6 cm. From a mid-level of Period I C (SKTD-1840).

7. Chert cubical weight having a beautiful running band at centre with polished surface. Similar weights of chert have been reported from Harappa also. Weight 1.5 gm; size 0.8 x 0.6 x 0.5 cm. From an early level of Period I C (SKTD-210).

8. Terracotta scale (pan) a shallow bowl having two perforations on the rim for threading. A few deep pricks are made inside. Handmade and overburnt to black. Diameter 7.2 cm. Similar one having three perforations comes from Mohenjo-daro and is of proportionate measurement. From a mid-level of Period I B (SKTD-1290).

9. Terracotta scale pan of half-broken, slightly extended oval shape, hand-made, having a single perforation extant, thin-section. From an early level of Period I A (SKTD-687). [Not illustrated]

I. MISCELLANEOUS OBJECTS OF BONE AND IVORY

Excavations at Surkotada have yielded a number of objects made from bone and ivory. It appears that the ivory industry was a flourishing one in Period I C as revealed by the find of an huge elephant tusk [Pl. LXXIB]. These objects are of the following categories:

1. Kohl-sticks.
2. Stylus.
3. Comb.
4. Pendant.
5. Polishers.

These have been prepared after splitting, flaking and polishing[1] them. The very careful manner in which they were prepared indicates the mastery of the craftsmen at Surkotada. Many of the shapes have been reported from other Harappan sites of Mohenjo-daro, Kalibangan, Chanhudaro, etc. But polishers found at Surkotada seem to be a new type by themselves. No published report mentions similar objects.

It is quite difficult to distinguish between the stylus and the kohl-stick. Styluses have been found to have their working edge on only one side, whereas kohl-sticks have both edges sharpened for use. The uniform and proportionate size of the objects at Surkotada from the earliest up to late levels reveal the homogeneity of the industry of the cultural complex at this site.

(1) *Kohl-sticks*

Twelve kohl-sticks of ivory and bone have been reported from the excavations at Surkotada. Most of them are in fairly good condition. They have been chipped and rubbed

[1] R. N Mehta, *Excavations at Nagara*, (Baroda, 1968), p. 153. Mehta has discussed in detail the technique of manufacture of bone points and arrowheads after actual experiments of producing them.

and fashioned to shape and finally smoothened by a polisher. Majority of them have working edges on both ends.

Similar objects have been reported from many of the Harappan sites such as Mohenjo-daro[1], Harappa,[2] Kalibangan,[3] etc. Marshall calls them 'awls'. Their soft and polished surface indicate their use for domestic purposes such as application of collyrium rather than for any other 'rough' use as 'awls'. Many of them are made from ivory and are finely polished.

Following specimens are illustrated and described:

Pl. LXXII

1. Ivory: Very well-preserved and round in section with smooth surface of working edges at both ends. Finest and the biggest complete specimen in the collection. Length 12 cm. From a late level of Period I B (SKTD-1978).

2. Bone: Rectangular in section having working edge on one side, the other broken. Coarse surface; polish has disappeared owing to use. Flat sides at centre have a rectangular section. Length (extant) 6.5 cm. From an early level of Period I C (SKTD-1800).

3. Bone: With round section, one edge having a pointed end and the other broken at the tip. Polished. Of a pure white colour. Well-preserved. Length (extant) 10.5 cm. From an early level of Period I C (SKTD-674).

4. Ivory: With only one working end. The sharp edge bears polish and the other end is bulbous; well preserved. Length 9 cm. From a late level of Period I A (SKTD-321).

5. Ivory: Ovoid in section but edges broken. Flattened sides with a bulbous base. Length (extant) 7.2 cm. From an early level of Period I A (SKTD-1144).

(2) *Stylus*

These seem to have been used for engraving and for writing or scratching and incising. Some are rough while in general their tip is shaved exactly as is done on the pencils of modern times. These have in general a working edge only on one side.

These are made of both bone and ivory. Not many have been found. Six of them have been reported out of which three belong to Period I A and two to Period I B and one Period I C.

Additional evidence comes in the shape of engravers of terracotta which also have similar working edges. Very likely these served the purpose of engraving and writing.

Following are the styluses illustrated and described:

1. Ivory: Stylus is full and complete being the biggest among the specimens and best preserved. Working edge on one side, the other edge is blunted. Thick section having a

[1] Marshall: 1931, pp. 470-71; Pl. CXXXII. 7-9, 11-12.

[2] Vats: 1940, p. 460; Pl. CXIX, 13, 15, 16.

[3] Author's personal observations.

polished surface. Tip resembles the pencils of modern times. Length (extant) 11.5 cm. From a late level of Period I B (SKTD-1337).

2. Ivory: Stylus is nicely polished with unbroken tip but only half of the stylus is extant; black colour. Length (extant) 6.4 cm. From a mid level of Period I B (SKTD-1515).

3. Ivory: Stylus having a sharpened tip. It is half-broken with polished surface but the core is rough due to exposure. Length (extant) 7.2 m. From a mid level of Period I C (SKTD-33).

(3) *Comb*

A single, broken ivory comb has been found at Surkotada. All its teeth have been lost. It comes from Period I C. It has been decorated on both sides by incised circles consisting of three lines in three rows. The rest of the details are not clear.

Though broken indeed, the comb reveals an important aspect of toilet equipment at Surkotada. Similar combs, some preserved intact along with decorations, have been reported from Mohenjodaro,[1] Harappa[2] and Chanhudaro[3]. They are all of the same type, thereby emphaising their cultural homogeneity.

Following are the details of the specimen [Pl. LXXIIIA]:

Comb is broken, all the teeth are missing. It is decorated on both sides with three incised double circles around a dot in three rows (extant) . Fragmentary and fragile. Length (extant) 2.7 cm, breadth 4.6 cm, thickness 0.3 cm. From an early level of Period I C (SKTD-1913).

(4) *Pendant*

A single unique pendant of ivory has been found in the hoard of carnelian and steatite beads included at Surkotda [Pl.LXXIIIA]:

Pendant is a flat piece having a hole made on top for hanging. The other side is plain. It has been decorated by two incised circles around four dots on both corners separated by the perforation. Essentially, it seems to have been used for some amuletic purpose. Length 3.4 cm, breadth 2.9 cm, thickness 0.3 cm. From a mid-level of Period I C (SKTD-2342).

(5) *Polishers*

These are thin flat pieces of rib fragments and bear soft polished surfaces and one sharpened margin. Very likely they were used as polishers. These are quite unique, as similar objects have not been reported from elsewhere.

Eleven polishers have been recovered from excavations, five of which come from Period I A, two from Period I B and four from Period I C.

This evidence suggests that it has been popular throughout the lifespan of the site.

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[1] Marshall: 1931, p. 532; Pl. CXXXII. 21; Mackay. 1938, pp. 541-2, Pls. XCI. 26, C. 15, CXXV. 24;

[2] Vats: 1940, p. 458; Pl. CXIX. 6

[3] Macay: 1943, p. 196; Pl. XCI.

The following polishers are illustrated and described [Pl. LXXXI]:

1. Bone polisher, with one sharpened margin. Length (extant) 13 cm, breadth ranges from 1.6 cm to 2.7 cm. From a late level of Period I A (SKTD-552).

2. Bone polisher with one margin sharpened. Length (extant) 3 cm, breadth 1.8 cm From a late level of Period I C (SKTD-2253).

3. Bone polisher with one sharpened margin. Length (extant) 6 cm, breadth 1.5 cm. From an early level of Period I A (SKTD-2254).

4. Bone polisher, broken. Length (extant) 1.1 cm. From a late level of Period I B (SKTD-1470).

J. MISCELLANEOUS SHELL OBJECTS

The shell working, it seems, was a flourishing industry at Surkotada. The discovery of a large numbers of bangle-fragments, beads and pendants, complete *chank*-shells and columnellae of shell attest to its popularity. The present section deals with on those objects of shell which have not been incorporated in the chapters on "Beads", "Bangles" and "Shell Remains" and are, therefore, of miscellaneous character. Such objects are, however, very meagre and include engravers, a ring, a button shaped disc and a few disc shaped objects, besides a few other unidentifiable objects.

It may be noted that unlike bangles of shell, the miscellaneous objects of shell are not prolific at Surkotada. Of engravers, there are two specimens at Surkotada. Engravers of shell are reported from Mohenjodaro[1], too.

The following Shell objects are described:

Pl. LXXIIIB

1. Shell: Circular disc shaped object. From a mid-level of Period I C (SKTD-406).

2. Shell: Concavo-convex decorated object. From a mid-level of Period I C (SKTD-2129).

3. Shell: Complete ring, circular in section. From a mid-level of Period I C (SKTD-1962).

4. Shell: An unidentifiable object, perhaps the handle of a ladle(?). From an early level of Period I B (SKTD-1 435).

5. Shell: An unidentifiable decorated object. From a mid-level of Period I C (SKTD-2353).

6. Shell: An engraver. From a mid-level of Period I A (SKTD-250).

7. Shell: An unidentifiable object. From a mid-level of Period I C (SKTD-2354).

[1] Marshall: 1931, Pl. CLVI., No. 19.

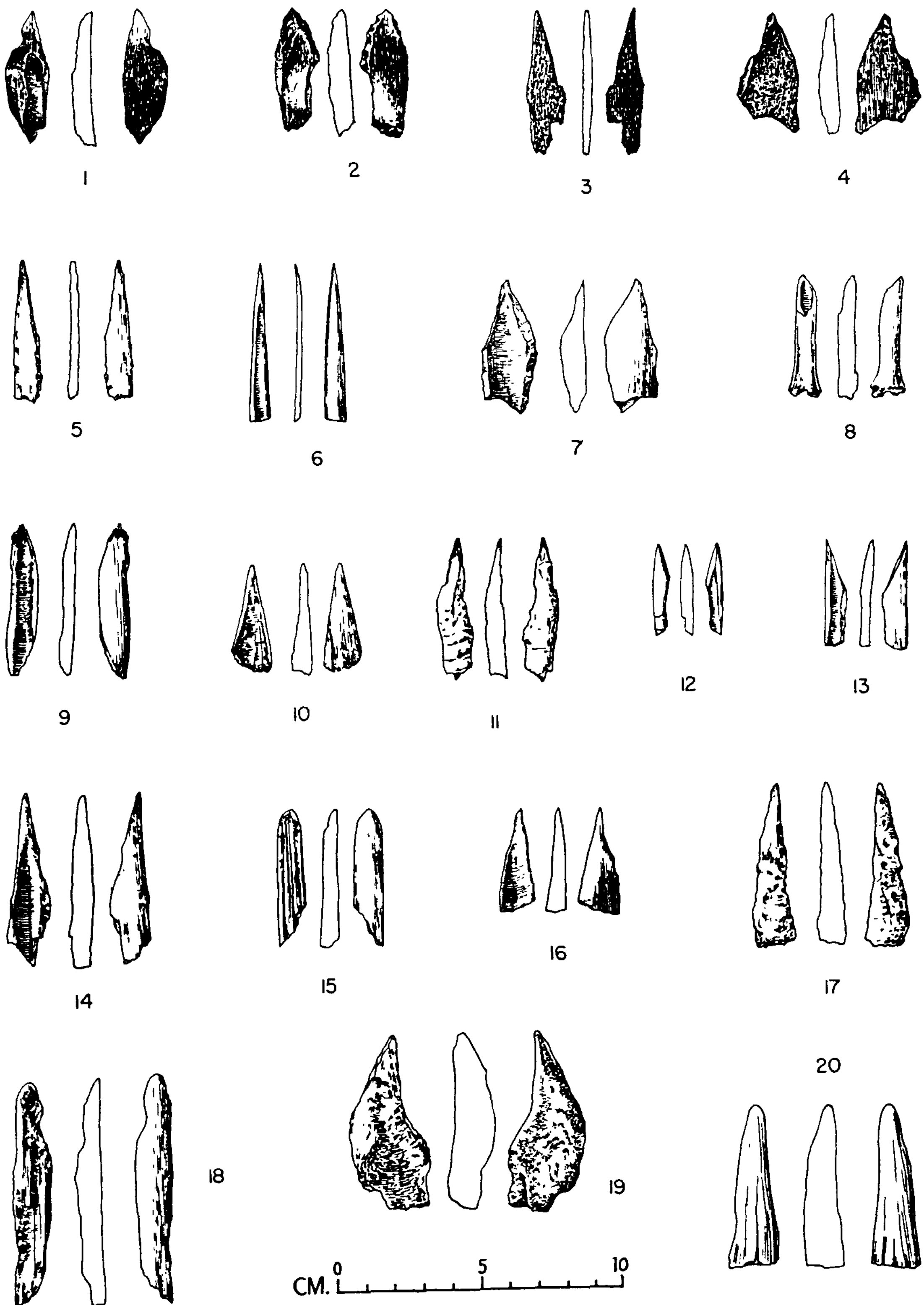


Fig. 81. Bone tools.

8. Shell: Circular disc (button) shaped, concavo-convex perforated object; decorated with radial lines. From a mid-level of Period I B (SKTD-1512).

9. Shell: Circular, thick, disc-shaped object. From a mid-level of Period I C (SKTD-815).

10. Shell: Circular disc-shaped concavo-convex object; broken; perforated. From a mid-level of Period I C (SKTD-2355).

K. BONE TOOLS

Excavations at Surkotada have brought to light a distinct bone tool industry, hitherto not reported from any other Harappan site. A wide range of tools have been recovered from the lowest to the upper levels.

Unfortunately in India, in the enthusiasm of having a knowledge of fauna of a particular site, tiny fragments and splinters of bones in what might have been valuable bone tools were not given due care and were inadvertently discarded. At Surkotada, it is the care for such tiny fragments, that resulted in the discovery of a fullfledged bone tool industry.

The technique, care and precision with which tools were shaped out of animals bones indicate the skill of the tool makers of Surkotada.

(i) *Method of collection*

Normally, bone tools are not easily recognized by the excavators in the field and easily pass for the mass of faunal remains which are generally cared for very late. It is not by a mere accident that such a wide range of bone tools were recovered at Surkotada, but from constant and systematic planned effort arising out of past experience. At Malvan,[1] it was noted that vital information regarding domestication, evolution, food habits. hunting, etc., can also be extracted from tiny fragments of bones. The practice hitherto has been to collect only the extremities, phalanges, complete parts, etc. while ribs, fragments of vertebra, shafts of long bones and other tiny fragments were not given much importance because from the identification point of view, these were thought to be not of much relevance. It was lately realized that such fragments also possess evidences of cutting, burning, domestication, etc. At Surkotada, from the very beginning of the excavation it was carefully planned not to discard any bone fragment and to keep all of them for careful observation and scrutiny.

(ii) *General condition, Treatment and Recording*

Majority of the tools recovered are in a good state of preservation as compared to other animal skeletal remains, the reason being, these tools were normally prepared by flaking, scraping, grinding, and tempering. The smooth and charred surface increased their compactness over which the action of the solvents was less severe as compared to other bones. Their constant use also made them more resistant. The working surface that gets

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[1] K R Allur and A K Sharma 'Animal skeletal remains' in F.R. allchin and J.P. Joshi, *Report of Excavations at Malvan* (in press).

rubbed and polished due to constant use makes the bone texture more compact and is thus less liable to decay.

After selecting the tools, these were cleaned with water and acid wherever necessary. After cleaning, they were marked and then chemically treated for hardening and preservation.

(iii) *Selection of material*

At Surkotada, almost all the tools have been manufactured out of fresh bones of butchered or dead animals. In some cases, cooked material has also been used. The natural long bones of dismembered carcases, fragments of artificially broken bone, ribs of large animals, phalanges and antlers, etc. have been used as raw material because they were both spongy and resistant. The natural shape of these was most suited for adopting them as tools by using simple techniques like splitting, scraping, notching, retouching, and grinding. Bones of freshly killed animal are not required to be softened. In case of an antler a slightly dried out bone is better because it is very resilient in a fresh state.

(iv) *Technique of manufacture*

It has been observed that while manufacturing bone tools, an attempt has been made to take maximum advantage of the natural shape, size, and sharpness of the fragments. The rod-like structure of long bones with the epiphyses working as natural handles, bones of small animals and birds were easy to be used as tools with little effort. As compared only to hardness of stone, the bone had both plasticity and firmness. This firmness is enhanced by charring and tempering as desired.

In the preparation of these tools, almost the same technique as employed in the preparation of lithic tools have been used. The tools have been manufactured by using such methods as percussion, splitting, flaking, cutting, notching, scraping, grinding, and tempering. One or a combination of more than one of these techniques were utilized according to the results desired. In one or two cases steaming was resorted to obtain a curvature. First a rough shape was obtained and then grinding was done on a grinder to make the working end smooth and sharp.

Splitting, flaking and scraping was done with stone tools like chert and chalcedony blades which have been found at Surkotada in large numbers in all the levels. In order to give strength, the whole or part of the tools were tempered with fire.

(v) *Tool Types*

Bone tools from Surkotada can be broadly classified into three categories according to their use:

1. Hunting tools.
2. Domestic tools.
3. Digging tools.

A careful study of provenance and frequency of different types of tools shows that from the lower to the upper levels there is a gradual decrease in the number of hunting tools and increase in the number of digging-tools and tools of domestic use. Majority of

the points were obtained from Period I A. These points are normally used for hunting and fishing. In Period I B most of the types from I A continue but with lesser frequency. In Period I C there is a sudden increase in the frequency of borers or awls, scrapers, piercers and digging tools. Two new types, i.e., spatula and spearhead also make their appearance in this sub-period.

Increase of borers or awls and piercers, which were normally used for stitching hides, points out to the increasing use of animal skin for clothing and other purposes. Agriculture and gardening was much in practice in Period I C as is pointed out by the increase in the number of digging-tools.

All the three types of tool-technology, i.e., lithic, bone and copper have been recorded at Surkotada. From this should we infer that people of different economic status and tradition were living at Surkotada together? Did these bone tools continue to be used by the urbanized Harappan folk of Surkotada even though they had better metal tools for the purpose? The second probability seems to be more correct as even today primitive tools continue to be used in sophisticated homes. Urbanization does not mean discarding of every thing of the past. Unfortunately, a lack of evidence on bone industry from other Harappan sites is proving a great handicap in arriving at any conclusion. Let us hope, due care will be given in future to identify and recover this unique bone tool industry also, while digging Harappan sites.

Breiul's remarks[1], "....the existence of a bone industry has generally passed unnoticed, or very imperfectly observed. Also an untoward publication of bones worn by natural agents, or gnawed, has contributed to cast discredit upon the genuine bone implements of these very remote epochs", equally hold good for the Harappan bone tool industry, which must be discovered and duly recognized.

The incidence of bone tools is as below:

	Period			Total
	IA	IB	IC	
Spearhead	-	-	1	1
Points	7	1	5	13
Burnishers	-	-	1	1
Burin, Borer or Awl	2	1	5	8
Scrapers	1	-	5	6
Piercers	1	1	3	5
Engravers	2	1	1	4
Spatula	-	-	1	1
Digging tools	-	1	3	5
Total	14	5	25	44

[1] Abbe H. Breiul, 'The use of bone implements in the Old Palaeolithic Period', *Antiquity*, Vol. XII, No. 45, 1938, p. 67.

(1) HUNTING TOOLS

(i) *Spearhead (Only one specimen)*

Bone 863: From an early level of Period I C, it indicates the skill and precision of the tool makers of Surkotada. This has been made from the shaft of a long bone. The smooth upper layer from the dorsal surface has been removed to expose the spongy texture within. In order to prepare a pointed end the bone has been scraped from both the margins. The point has been slightly ground also. At the other end, two backward projecting barbs have been produced by cutting the shaft from the centre. One barb is broken. The spearhead might have been hafted to a wooden handle. The point has been slightly tempered. It has become smooth due to constant use. Towards the pointed end the body of the tool has been given a slight curvature. This curvature has been obtained by softening the bone by heating it in damp conditions so that it may not crack. Length 100 mm. Maximum width at the centre 26 mm. It is interesting to note that the barbs have been cut just from the centre of the tool both length and widthwise, i.e., length of the point is 50 mm, length of the barbs is 50 mm and thickness of each barb at the origin is 13 mm. (Fig. 82:26; Pl. LXXIV, 4)

(ii) *Points*

The points are generally made out of splinters of long bones. They are made by groove-splinter technique. This technique of making bone points goes back to the dawn of the upper Palaeolithic age.[1] In the shafts of long bones, grooves were cut with a burin along the shaft of the bone. Afterwards, the bone was split into narrow strips along these grooves. One end was thinly scraped with a knife. Finally, the pointed end was ground on a sharpener and very sharp points were achieved according to the need. In order to obtain very sharp points, these tools were ground on a fine grained stone plaque. Some times the upper and under surfaces are also carefully finished. Broader ends were used as handles. There are various uses of these points. The available specimens can be divided into the following three types:

(a) *Oblique points*

We have got five points of this type in our collection. Unfortunately, the broader ends of almost all have broken, which has made it difficult to state the exact length of the tool.

In order to obtain such tools, slicing has been done in a majority of the cases on one side only. Short points with thin and sharp ends might have been used as arrowheads to kill small game.

Bone 3125: From a late level of Period I C. Length 61 mm, thickness 7 mm. Dorsal surface has not been ground (Fig. 81:14; Pl. LXXV, 5).

Bone 1871: From an early level of Period I A and made out of a rib fragment by simple slicing from one side, whereas on the other side the straight edge of the rib is

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[1] Hallam L. Movius Jr., 'Chatelparronian in French Archaeology', *Antiquity*, XLIII, 1969, pp. 118-119.

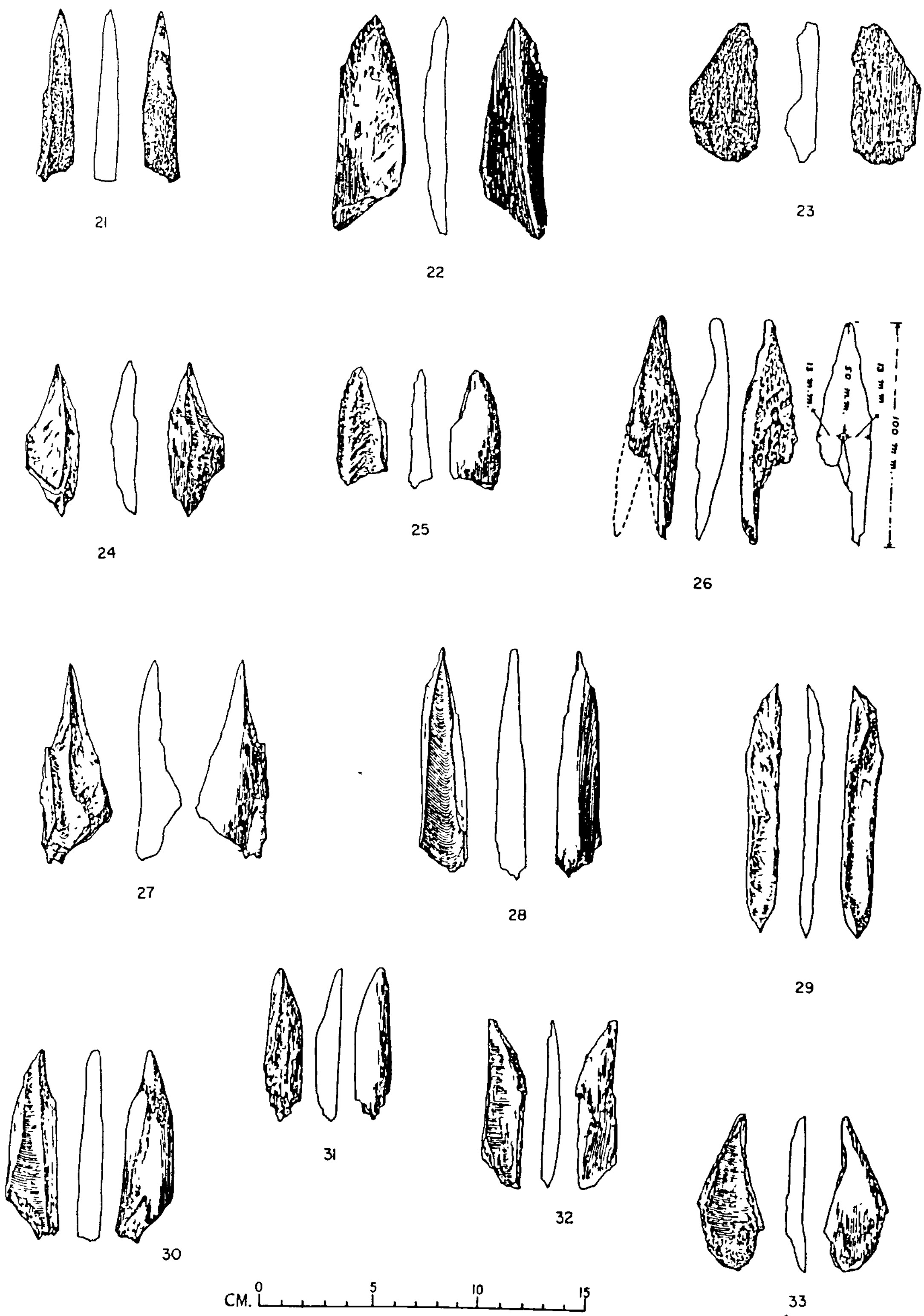


Fig. 82. Bone tools.

intact. Length 48 mm, thickness 2.5 mm . It has not been ground (Fig. 81 : 5; Pl. LXXVI, 7).

Bone 2263: From an early level of Period I A and made out of the rib piece. On one end scraping has been done on both the edges. Only the sides have been ground. On the ventral surface the spongy cortex is present; it is 50 mm long and 3 mm thick (Fig. 81:3; Pl. LXXV, 8).

Bone 2262: From a mid-level of Period I A and made out of a shaft of long bone of a small animal. Very sharp point; 37 mm long and 2.5 mm thick. (Fig. 81:13; Pl. LXXV, 10).

Bone 2264: From an early level of Period I A and made from the shaft of a long bone. The natural curve has been taken advantage of to give it a proper shape; 37 mm long (Fig. 81:16; Pl. LXXVII, 6).

(b) *Bifacial points*

In this type there are two subtypes, i.e. A - thin sharp points and B - thick points. These points are normally made on shafts of long bones and both the edges are scraped in order to get a point.

Subtype A—Thin Points:

There are four specimen of this subtype. These have been prepared from shafts of small animals like goats, etc.

Bone 85: From a mid-level of Period I C. It has been ground from all the sides; 38 mm long (Fig 81:10; Pl. LXXV, 6).

Bone 2268: From a late level of Period I B with very thin and sharp point. 56 mm long, 2 mm thick. It has been ground and polished from all sides. Grinding marks can be seen on the surface (Fig. 81:6; Pl. LXXVI, 6). Such a sharp point has also been reported from *Verkholensk*[1].

Bone 2269: From an early level of Period I C. A bifacial point ground from all sides; 32 mm long (Fig. 81:12; Pl. LXXVII, 7).

Bone 2271: From a mid-level of Period I C with very sharp point made out of a shaft of long bone of a smaller animal like sheep or goat. From both the margins two flakes have been removed. It has not been ground; 47 mm long (Fig. 81:7; Pl. LXXIV, 6).

Subtype B — Thick Points:

There are two examples of this subtype. Both have been shaped out of shafts of long bones of large animals and have been polished very nicely. The polishing on their surface suggests that they might have been used as bone needles to stitch hides and other objects. Such needles have been reported from Tal-i-Siah Madavan.[2]

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[1] S.A. Semenov, *Prehistoric Technology* (English Translation) (London, 1964), p. 140.

[2] Aurel Stein, 'An Archaeological tour in the ancient Persis,' *Iraq.*, Vol. III, 1936, p. 184.

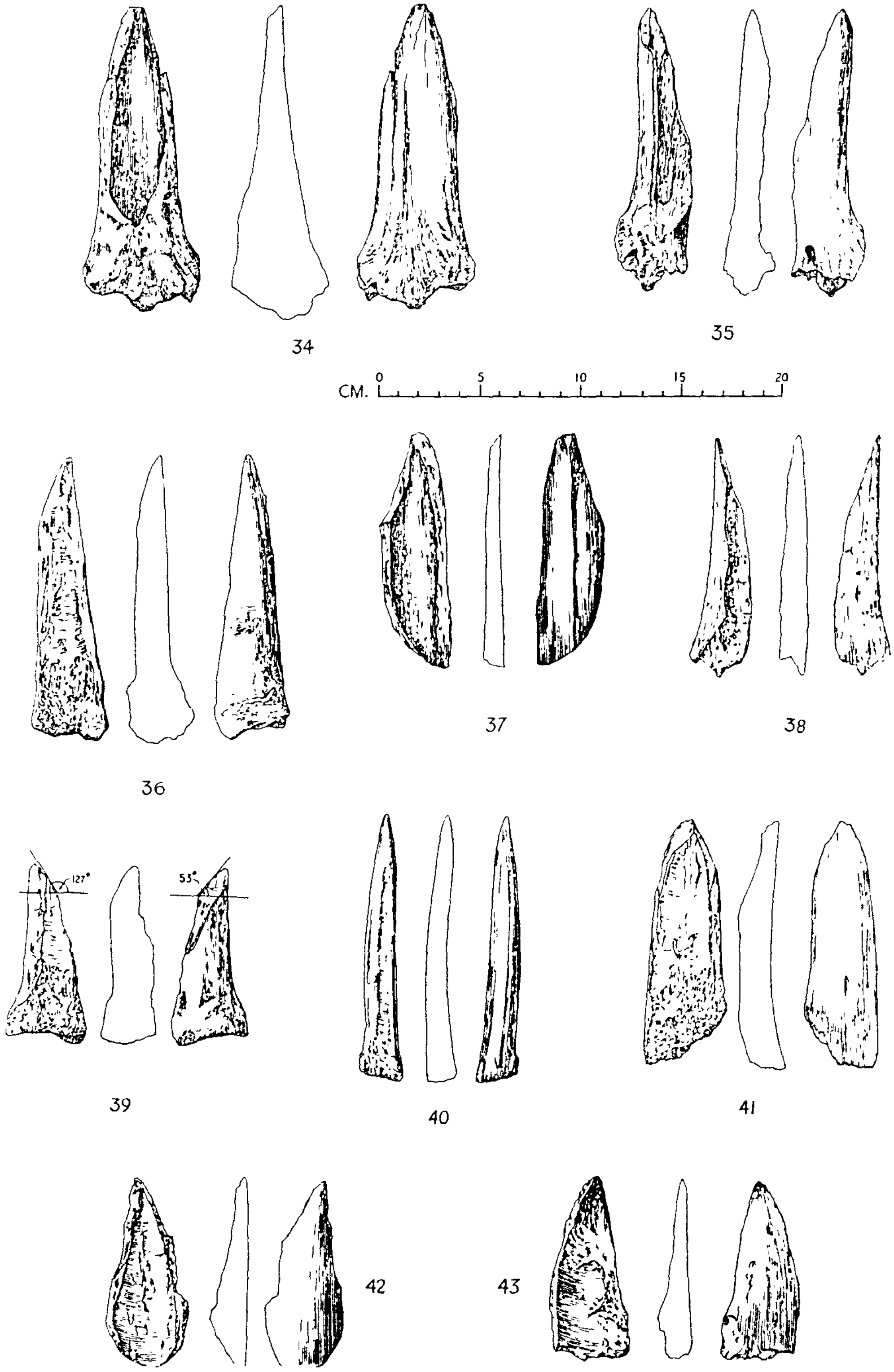


Fig. 83. Bone tools.

Bone 2270: From an early level of Period I A and made from a long bone; one of the epiphyses is present to be used as a handle. The tool has been polished almost along its entire length. Traces of grinding can be seen on the pointed surface; 129 mm long (Fig. 83:40; Pl. LXXVI, 2).

Bone 1637: From an early level of Period I A. This needle has been made out of the partially charred shaft of a long bone. The pointed end is not charred. Grinding and polishing is limited only to the pointed end; 79 mm long (Fig. 82:21; Pl. LXXV, 1).

(c) *Unipoints*

There are two specimens of this type. Both have been made in a very crude way and have got a lot of encrustrations deposited over their surface. These might have been used as barbs for the fishing spears. Such types have been reported from Botany Bay.[1]

Bone 2265: From a late level of Period I A; charred and broken at the fastening end; 41 mm long (Fig. 81:11; Pl. LXXVI, 5).

Bone 1331: From an early level of Period I C and broken at the fastening end; 57 mm long (Fig. 81:17; Pl. LXXVI, 8).

(2) DOMESTIC TOOLS

(i) *Burnisher*

Bone 1014: From a mid-level of Period I C. A burnisher made out of the proximal end and shaft portion of radius. In order to obtain an angular surface, the complete radius was cut in an oblique angle with some hard and sharp object like stone and then the oblique surface so obtained was smoothened by grinding. This tool might have been used for burnishing clay vessels. The burnishing was done by the horizontal movement of the tool. The shaft portion has been cut at an angle of 127^0 towards its left. After converting it into a tool the bone has been charred to give it sufficient strength. That it was used as a burnisher or polisher is clear from the smooth surface on the cut portion. Striation marks produced on this surface can also be seen under the microscope. The tool was used by holding it with the right hand (as shown in the figure), with the thumb resting on the upper surface, the index finger on the side and the rest of the fingers giving a grip below. The second finger was resting in the interosseous space, while the thumb was resting just below the proximal extremity. At both these points due to constant use a smooth surface with a slight depression has been caused. The tool is 92 mm long, whereas the length of the burnishing surface is 22 x 13 mm. Such bone burnishers have been reported from Luka-Vrublevetskaya[2] and also from Tell Arpachiyah[3] in earlier chronological contexts (Fig. 83 : 39; LXXVIII, 4).

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[1] J.V.S. Megaw, 'Captain Cook and bone bars at Botany Bay', *Antiquity*, Vol. XLIII, 1969, pp.214 15

[2] Semenov 1964, pp. 183-85.

[3] Mallowan and Rose, *Iraq*, Vol II, Part I, 1933, p. 103

(ii) *Burin, Borer or Awl*

In this collection there are eight pieces of borers including one burin. All have been made from the shaft pieces of long bones. Two, Nos. 797 and 904, have been heavily charred after shaping them as tools. These have got sharp, carefully retouched projecting points. The points have been achieved by making deep notches on the sides of the shaft flakes. Both, small projecting sharp tip and a fairly elongated thick points are available.

Similar tools were first produced on stones during upper paleolithic times and it appears that the same tradition continued but with the change of the material. These awls have very sharp tips broadening out towards the base which made them suitable for piercing a hole in the skin for the passage of the thread. These were used for boring and drilling wood and leather. Such awls might have been used for initial piercing of the skin and the stitching was done with needle. The charring has been done to give compactness and strength. Two types of wear traces are produced in the awls: (1) striations in the form of fine lines on the tip and parallel to the axis of the awl; (2) tip getting polished.

Bone 797: This is a fine example of a burin from a mid-level of Period I A; 45 mm long. The boring point is 14 mm long. In this case the shaft of a long bone has been given shape by removing two flakes from the sides and by producing a notch or a guard on one side. This guard is produced in order to prevent the tool from piercing to more than the desired length (Fig. 81:1; Pl. LXXV, 7).

Bone 9041: From a late level of Period I C; 43 mm long. The boring point is 15 mm long. In this case also, first, two flakes have been removed from the ventral side of the shaft and then on one side a notch or a guard has been produced (Fig. 81:4; Pl. LXXV, 3).

Bone 1546: From a mid-level of Period I C; length 68 mm. In this case the flakes have been removed from the dorsal surface. The point has been later on tempered to give it strength and compactness. This could have also been used as an awl for a stitching skins etc (Fig. 82:24; Pl. LXXIV, 2).

Bone 744: From a mid-level of Period I B; length 68 mm. The tool has become smooth on both the surfaces due to use (Fig. 82:33; Pl. LXXIV, 5).

Bone 744: From a mid-level of Period I C; length 82 mm. The tip is broken (Fig. 82:33; Pl. LXXIV, 5).

Bone 1518: From a late level of Period I C; length 82 mm. The tip is broken (Fig. 82:30; Pl. LXXVII, 1).

Bone 1542: From a late level of Period I C; length 59 mm. Here the tip has been ground (Fig. 81:19; Pl. LXXVII, 3).

Bone 838: From a late level of Period I A. This is a 44 mm long awl and has been prepared out of a charred shaft fragment. The mid-rib runs through from the top to the point. Pointed end has been achieved by a fine retouching. On one side, a notch has been made by removing a flake by cutting. The tang thus produced might have been used for hafting in a handle of 8 mm thickness and the compactness produced due to charring has made the tool very strong (Fig. 81:2; Pl. LXXV, 9).

(iii) *Side Scrapers or meat knives*

In order to separate the adhering flesh from the bones and also for cutting meat and scraping out the fat and grease content, various type of scrapers were produced out of the shafts of long bones of normally big animals. Flatness, coupled with a slight curvature and compactness of the shafts, was taken advantage of to produce such meat knives. Some of these were used as piercers cum scrapers while the others were only for scarping. Out of six specimen four have been produced out of charred fragments.

Bone 1403: From an early level of Period I C. In one case a short wide and thick sectioned flake has been utilized as a side scraper. One longer side has been retouched to give it a sharp edge. The cavity of the marrow provides a natural holding place to the thumb. Due to constant use the dorsal surface has acquired a smooth, shining surface. A closer examination of this tool shows that there was only one way movement. The smooth polish also indicates that the tool was used on fresh damp flesh instead of on dried skin. It is 144 mm long. The scraping edge is 24 mm in length (Fig. 83:37; Pl. LXXVI, 1).

Bone 1169: From a mid-level of Period I C. This variety is a double edged side scraper; here the scraping edge is present on either side of an oval flake. This specimen is heavily charred. The end is broken. One side gives the impression of a concave scraper. It is 63 mm long (Fig. 82:23; Pl. LXXVII,7).

(iv) *Piercers cum Scrapers*

There are four specimen of this type. Here, the two functions, i.e., piercing and scraping have been combined in one tool by retouching the end to give it a pointed end. All the four are one sided scrapers as the other side has been kept blunt deliberately to provide a firm grip to the index finger. The scarping edge is very sharp. In two cases, it is the left edge which is sharp whereas in the other two cases it was the right edge.

Bone 539: From a mid-level of Period I A. It is made out of a flat shaft fragment which is charred. Secondary retouching on the point can be seen easily. It is 98 mm long. Right-scraping edge is 27 mm long (Fig. 82:22; Pl. LXXVIII, 9).

Bone 868: From a mid-level of Period I C. This is also charred. In this case, to achieve the sharp right edge, the shaft has been cut on the ventral surface. While working, it must have been held by the left hand. It is 88 mm long. The cutting edge is 54 mm long (Fig. 83:43; Pl. LXXVIII, 10).

In the above two cases it is observed that the polishing has extended to both the ventral and dorsal faces of the blades, which shows that they were used for cutting soft material like flesh, etc. The polishing has not covered both the edges. The thick end has remained unpolished. While using these tools they were held between the thumb, index and second fingers. The thumb and the second finger held the faces, the index finger pressed from the top where the area had been blunted by a retouch.

Bone 2009: From a mid-level of the Period I C. The left side is sharp while the right is blunt. The end has been retouched to make a sharp point; 94 mm long. Scraping edge is 41 mm long (Fig. 83:42; Pl. LXXVIII, 6).

Bone 1724: From a mid-level of Period I C. The left side is sharp, while a flat blunt surface has been produced on the right ridge for the index finger to rest; 54 mm long. Scraping edge is 16 mm long (Fig. 82:25; Pl. LXXVIII, 8).

In both the above cases the surface has remained rough, which shows that these were probably used for scraping wood or dried skin.

(v) *Piercers*

These are very crude tools, most probably made on the spot at the time of the need, from the rib or shafts of the long bones of large animals. These have been made by splitting and scraping technique. No secondary retouching has been done except in one case.

Bone 1183: From a late level of Period I A. Here the point has been retouched from the dorsal side to make it sharp. No grinding or polishing has been done (Fig. 82:28; Pl. LXXV, 1).

Bone 2168: From an early level of Period I C has a very sharp point; 85 mm long (Fig 82:27; Pl. LXXIV, 3).

Bone 2267: From a mid-level of Period I B. It has been made by scraping out two flakes from the ventral side. The broader end is broken; 68 mm long (Fig. 82:31; Pl. LXXVII, 4).

Bone 1816: From a late level of Period I C. Both the ends are pointed with secondary retouching at the point. 109 mm long (Fig. 82:29; Pl. LXXVI, 3).

Bone 407: From a mid-level of Period I C and made from a rib of a cattle. The flake has been removed only from one side, by scraping while keeping the natural edge on the other side intact; 116 mm long (Fig 83:38; Pl. LXXVIII, 3).

(vi) *Engravers*

These have also been shaped out of long bones of small and big animals. In one case an Avian tibia has also been utilized. The same technique as utilized for preparing points has also been utilized here with the only difference that the points here are abrupt and not so sharp. Except Bone No. 1848, the points of the other three specimens have been tempered with fire.

The tools were perhaps used for engraving pottery.

Bone 1848: From an early level of Period I A and made from the shaft of a long bone of a large animal. It is an obliquely cut point; 76 mm long (Fig. 82:32; Pl. LX-XIV, 7).

Bone 1661: From a mid-level of Period I B and made from the shaft of long bone of small animal; length 49 mm; rounded tip (Fig. 81:15; Pl. LXXV, 2).

Bone 2266: From an early level of the Period I C. Same as above but with a pointed tip produced by secondary retouching; 52 mm long (Fig. 81:9; Pl. LXXVII, 8).

Bone 433: From a mid-level of Period I A and made from the lower half of Avian

tibia. In this case the bone has not been split into two vertical halves; 44 mm long and 7 mm thick in the shaft region (Fig. 81:8; Pl. LXXV, 4).

(vii) *Spatula*

This has been made out of the shaft of a long bone of a goat or a sheep. One end has been scraped from both the edges to give a flat round end on the ventral side. On the right side a notch or guard has been made. This tool was used probably for engraving thick lines on pottery and for rubbing the surface smooth. Only one specimen is available.

Bone 1817: From a late level of Period I C; 79 mm long (Fig. 81:18; Pl. LXXVII, 2).

(3) DIGGING TOOLS

Existence of earth digging bone tools has been recognized from the palaeolithic period. Digging tools recovered from Surkotada are one very important category of tools as they seem to be agricultural and gardening implements.

Bone 81: From an early level of Period I A. It is a broken piece of an antler which was used for digging. It is 56 mm long. Traces of working are present at the end which has become rounded, smooth and polished due to constant use. It might have been tied to a handle horizontally and then used for limited earthwork. Wear traces are very clear on the surface of the tool. They take the form of rubbed, slightly shiny and polished patches on the raised parts of the surface. Such tools have also been reported from Shigirskpeat bog (Ural area)[1] (Fig. 81:20; Pl. LXXVII, 5).

We have got four more digging tools in our collection one of which, Bone No. 488, is a shovel. All the four are worn out and a bit blunted at ends. Their faces and angles are worn out due to attrition. They have also become smooth at the ends. Striation marks are present at the ends which have been caused due to rubbing with sand particles present in the earth. Traces of wear and tear point out to the fact that the ground where these tools were used was of *Kankary* nature with the presence of sand in a good percentage.

Bone 488: From a mid-level of Period I C. It is a shovel-cum-digger. This tool has been made out of the lower half of the tibia of cattle. The distal end has been kept intact to give a good grip to the hand. The shaft has been split just above the distal extremity region at an angle of 45^0. The pointed end has been produced by secondary cutting.The shaft has been cleaved in such a way that two thirds of it has been removed leaving one third portion and giving a pointed end. Medullary cavity has been kept intact at the distal end to hold the dug up earth like a shovel. The tool is 154 mm long and 68 mm wide at the holding end (Fig. 83:34; Pl LXXVIII; 5).

From the angle of wear it can be inferred that, while working, the tool was held with the right hand and was slightly worked tilting it to the left as the left margin of the tool shows more wear and has become very smooth. It is one of the best examples of an agricultural tool which shows that the people of Surkotada were practising agriculture.

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[1] Semenov: 1964, pp. 181-183.

Bone 1168: From an early level of Period I C. This is a digging tool fashioned out of the proximal half of the metacarpal of cattle. The bone has been split longitudinally into two halves by the cutting method. The centre of the proximal cavity has been used as a striking platform. A sharp edged stone knife or blade was put on the cavity and then a simple blow with a stone or wooden hammer was struck at right angles to the horizontal proximal surface with the forces running along the lines of the vascular grooves thus dividing the bone into two equal longitudinal halves, retaining one metacarpal tuberosity with each half. In order to give a pointed end, the lower end of the shaft was scratched on one side by a stone blade and flakes were removed. The pointed end was then ground to give it a smooth surface. The tool was used by holding it in the right hand as can be seen by a secondary cutting on the left side and the finger impression caused on the dorsal surface of the tool just below the tuberosity in the neck region. Due to constant use, a depression has been created by the index finger where it used to rest. The area and the nature of depression also shows that the tool was held with the right-hand. While digging, the thumb was resting parallel to the tool in the socket of the medullary cavity, along the lines of force. The metacarpal tuberosity also helped in giving a good grip. The tool is 140 mm long and 42 mm wide at the grip end. The length of the second flake scar is 38 mm, thus giving nearly 38 mm long point of insertion. Due to constant use the pointed end has become very smooth and polished. Vertical striation marks could be seen under microscope on the working end (Fig. 83:36; Pl. LXXVIII, 1).

Bone 1580: From a mid-level of the Period I C. This is another digging tool made out of pre-maxilla probably of cattle (infra-orbital foramen is clearly visible). In this case, first a primary flake has been removed by holding the bone horizontally and hitting it with a wooden or bone hammer by the cylinder hammer technique. After the removal of the first flake, secondary flakes have also been removed to give the tool a proper shape. This has been achieved in two stages. Firstly, a flake has been removed by hitting the right edge at an angle of near 60^0 and then the left edge has been hit to remove a small flake, thus making the end of the tool pointed and sharp. Due to constant use the working end of the tool got smoothened and bears a polished surface. The point is still very sharp. The tool could have also been used for piercing a hide, etc. The length of the bone from which first flake has been removed is 107 mm, the second flake is 70 mm and the third is 25 mm. The tool is 135 mm long (Fig. 83:35; Pl. LXXVIII, 2).

Bone 979: From a middle level of Period I B. Digging tool has been made from the shaft of long bone of a big animal, perhaps a bovine. The long bone was first split into two halves with a sharp stone blade. This is clear from the straight longitudinally-cut margins. On the broader end a portion of the epiphysis having the spongy area is still present, while the other end has been converted into a point. This has been achieved by removing two flakes from the sides after which the sides have been scraped and retouched. The point is broken. While working, the thumb rested inside the medullary cavity, while rest of the fingers held the tool from behind. Due to constant use the dorsal surface of the tool has become very smooth and shining. It is 112 mm long and 41 mm wide at the grip end. The tool has not been ground (Fig. 83:41; Pl. LXXVI, 4).

9. SCRIPT

SEALS, SCRIPT PAINTED ON POTSHERDS AND GRAFFITI

Since Cunningham's discovery of the inscribed seals from Harappa in 1853-56 to the excavation at Surkotada in 1971-72, a large number of seals, sealings and graffiti bearing the Harappan script have been found. This script consists of 102 signs according to Hunter, about 300 as per Fannish and Soviet archaeologists and 52 basic signs classified by S.R. Rao.[1]

Various attempts have been made to decipher this elusive script in and outside India. Of late, considerable research is being done in this direction.

In 1969, Asko and Simo Parpola of Finland with the help of computers, after statistical analysis, declared the Harappan script as belonging to a Dravidian language. The Russian scholars led by Yu.V. Knorozov, in their own way, have attempted to read in the the script a proto-Dravidian language. Mahadevan claims that in his decipherment of the script he has read a language which resembles the south Dravidian (including Telugu in general and old Tamil in particular). Basing on the principle of acrophony M.V.N. Krishna Rao propounded that the key to the Harappan script lies in the Siva Pasupati seal. He feels that the language of the Indus people might be nearer to the Vedic language or one of its earliest forms.

Fateh Singh feels that the Harappan seals were used for printing and reads the inscriptions from right to left or, left to right as he likes and sees in them the symbolism of Brahmanas and Upanishads. S.R. Rao feels that the Harappan script has a clear affinity to Semitic alphabets and reads in it the Sanskrit language rather than the Dravidian. Recently, however, Mitchiner has rather convincingly tried to read proto-Rigvedic Sanskrit in the seals.[2] B.B. Lal has tried to prove on the basis of evidence available from Kalibangan, that Harappan script was written from right to left.[3]

One thing certain at the moment is that none of the claims of decipherment of the Harappan script is acceptable to all, nor has it been conclusively proved whether it is akin to Sanskrit or Dravidian languages. However, the attempts keep the subject alive and scholars are after it. On the other hand, Lal "wonders as to why the Indus language must necessarily be either Sanskrit or Dravidian. Is it impossible that it could have been yet another language which is since dead."[4] But it should be borne in mind that such an

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[1] S.R.Rao, 'Decipherment of the Indus Script - Methodology and languages', in Agrawal and Ghosh (ed.), *op. cit.*, 1973, pp. 323-340.

[2] John E. Mitchiner, *Studies in the Indus Valley Inscriptions*, New Delhi, 1978.

[3] B. M. Pande, "Sindhu Lipi Rahasyodghatan ki Disha Main" (In Hindi), *Dinaman*, 29th October, 1972, pp. 25-27 contains an uptodate *resume* of the entire research work done in the field of Harappan script.

[4] B.B. Lal, 'Some observations on Harappan Script'in Dr. Lokesh Chandra and S.P. Gupta (ed) : *op. cit.* 1970, pp. 189-202.

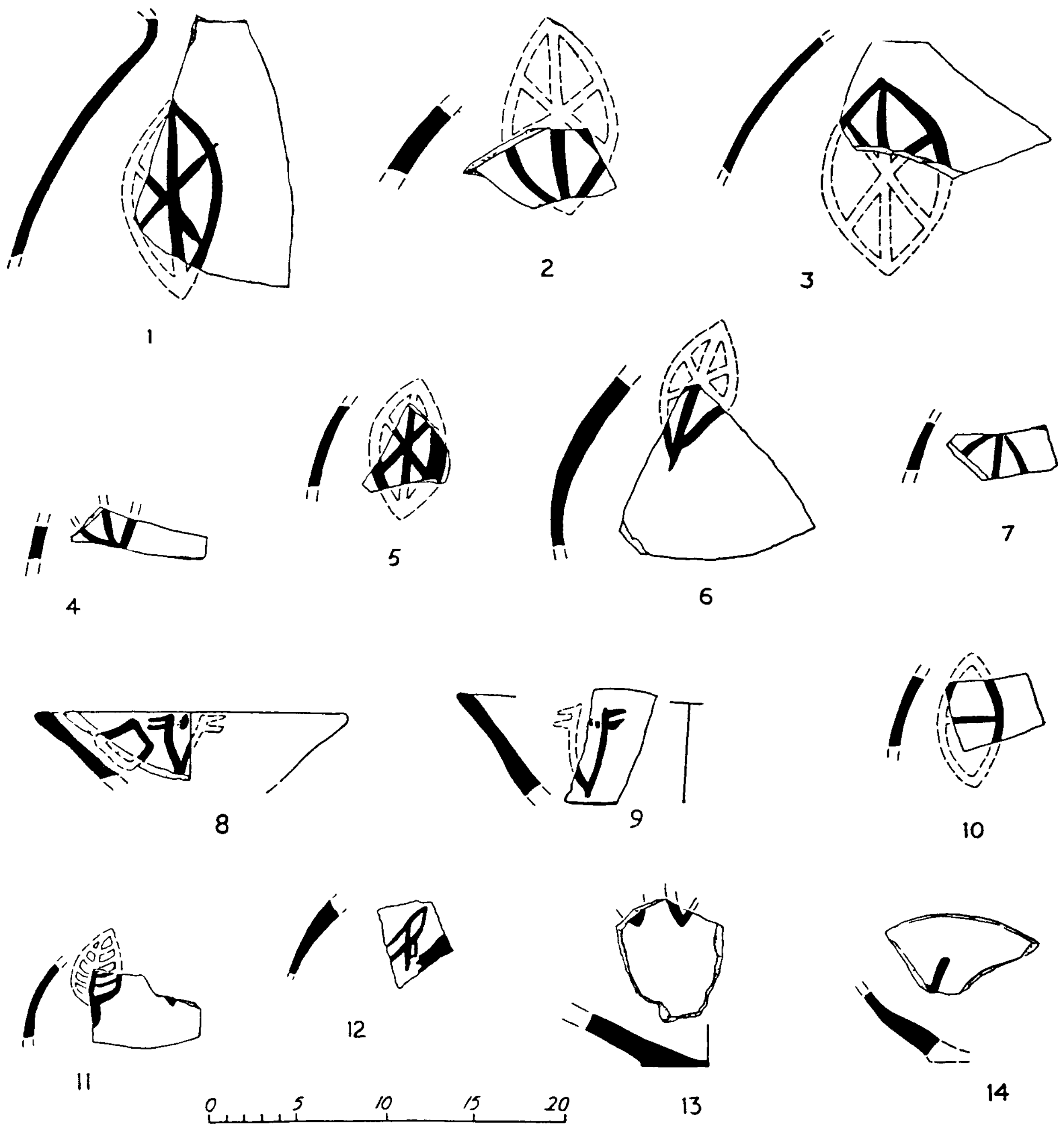


Fig. 84. Painted script.

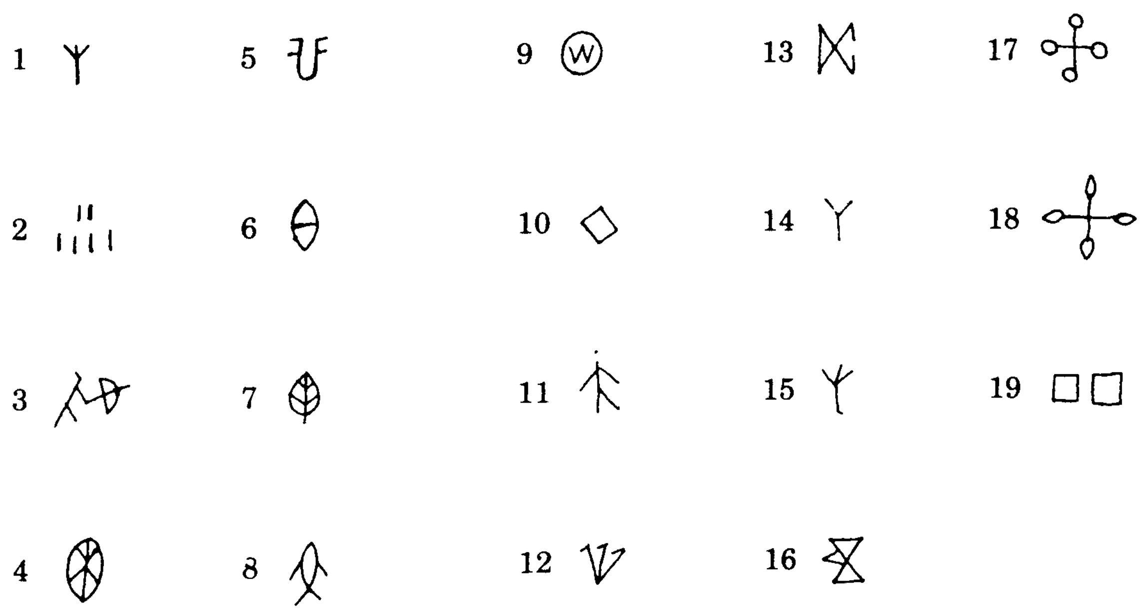
urbanised civilisation can not vanish, without leaving its linguistic trace from the canvas of history and till date in spite of the best efforts of Burrow and others the purity of Vedic Sanskrit remains unchallenged till the middle of the first millennium B.C., when classical Sanskrit begins to show Dravidian influence. Be that as it may, let us hope, some day the riddle will be solved and the material evidence of Surkotada will also prove useful.

Surkotada has yielded the evidence of Harappan script in the form of two seals, one steatite and the other terracotta. The steatite seal has the typical unicorn and the signs and the terracotta seal has only the script in it. Besides, nine potsherds with inscribed graffiti containing Harappan script and fourteen sherds with script painted in black have also come to light. Hitherto the script was confined to seals, sealings and graffiti. The writing on pots is an important aspect and suggests that even the potters were literate and could write. The script is painted on out side of the pots and inside the dishes. The writing is skilled and does show the proficiency of the writer. It is systematic and bold.

The following chart shows the evidence of the script available periodwise:

Period	Seals	Painted sherds	Graffiti		Remarks
			Light	Bold	
I A	Steatite seal 1	11	3	nil	Harappan signs with animal (unicorn)
I B	nil	1	nil	nil	nil
I C	Terracotta seal 1	2	nil	6	Only signs : no animal

In all, nineteen Harappan signs are available which are written as below and are very well comparable to the Indus signs:



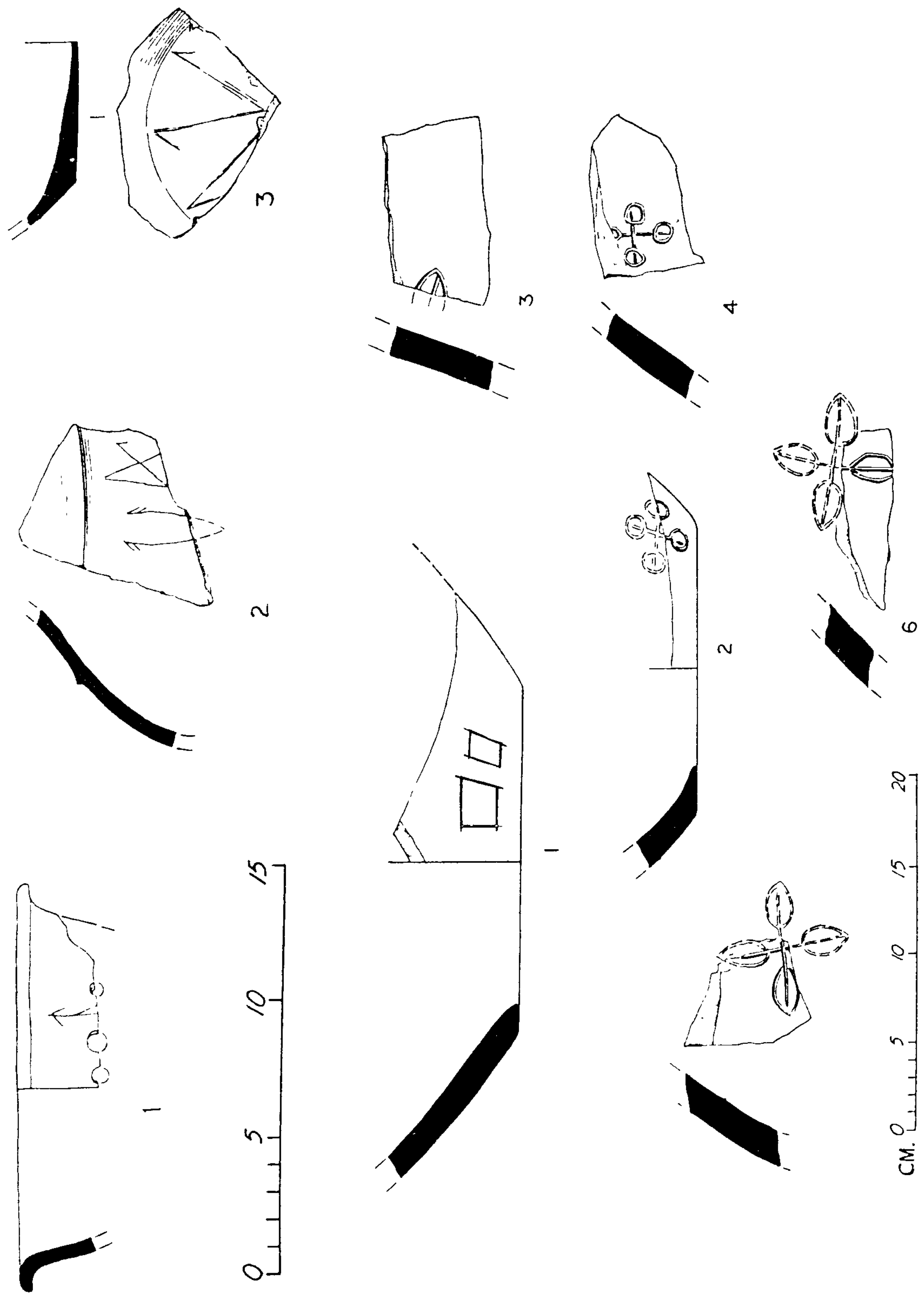


Fig. 85. Graffiti.

The symbols 4 and 5 are common in graffiti, painted script and the seals.

The most common signs in painted script are 4, 5, 6, 7, 8 and 10.

Some interesting facts which have been observed are as below:

1. Painted script on potsherds start from the middle level of Period I A while graffiti with eight incisions occurs from the lowest level and steatite seal occurs in the upper level of Period I A.

2. In Period I B and I C the frequency of painted sherds becomes less. A terracotta seal without an animal is available in Period I C.

3. Deep incision in graffiti occurs in Period I C and symbol Nos. 4, 5, 11, 12, 17, 18 and 19 are available in it. Typical Harappan symbols in eight incised graffiti from Period I C are absent.

(i) *Seals* [Pl. LXXIX]:

1. Steatite square seal (2.5 x 2.5 cm) with a perforated boss on the reverse and representation of a unicorn standing before a bowl like receptacle on an upright support on the obverse.[1] On the top there are five symbols which are Vats' sign 74, 378, 441 one akin to 3757 and 441. From a late level of Period I A (SKTD-1730).

2. Terracotta square seal (2.7 x 2.7 cm) with square unperforated boss on the reverse and the signs in two lines on the obverse. Damaged. First line - Vats sign no. 238, 68, 441 with an addition of a standing stroke, 238, Marshall's sign CVI. From an early level of Period I C (SKTD-1730).

(ii) *Script painted on Potsherds*:

Fig. 84; Pl. LXXX

1. Sign painted with a brush in black pigment over a thin red slipped surface in the prefiring stage. Fragment of a Harappan red ware jar. Sign Marshall LXXII and Vats 73. From a late level of Period I A.

2. Sign painted with a brush in black pigment over a thick slipped red surface in the prefiring stage. Fragment of a Harappan red ware jar. Sign Marshall LXXIII and Vats 73. From a late level of the Period I A.

3. Sign painted with a brush in black pigment over a thin whitish wash, which is almost gone, in the prefiring stage. Fragment of a Harappan red ware jar. From a late level of Period I A.

4. Sign painted with a brush in black pigment over a thin whitish slip in the prefiring stage. Fragment of a Harappan red ware jar. Sign Marshall LXXIII and Vats 73. From a mid-level of Period I A.

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[1] Marshall:1931, pp. 372, 383, Pl CII, A.B C.

5. Sign painted with a brush in black pigment over a thin white slipped surface in prefiring stage. Fragment of a Harappan red ware jar. From a mid-level of Period I A.

6. Sign painted with a brush in black pigment over a red slipped surface. Fragment of a Harappan red ware jar. Sign Marshall LXXIII and Vats 73. From a late level of Period I A.

7. Sign painted with a brush in black pigment over a red slipped surface . Fragment of a Harappan red ware jar. Sign Vats 5 (b). From a mid-level of Period I C.

8. Sign painted with a brush in black pigment over a thin red washed inside surface. Fragment of a Harappan red ware shallow dish. Sign Marshall CCXLII and CXII. From a late level of Period I A.

9. Sign painted with a brush inside in black pigment over a thin red washed surface in the prefiring stage. Fragment of a Harappan red ware shallow dish. Sign Marshall CCXLII. From a late level of Period I A.

10. Sign painted with a brush in black pigment over a red slipped surface in the prefiring stage. Fragment of a jar in Harappan red ware. Sign Vats 50 (b). From a mid-level of Period I C.

11. Signs painted in black pigment over a red slipped surface (only one sign is partially available) in the prefiring stage. Fragment of a Harappan red ware jar. Sign Marshall CCCXXVI, Vats 926. From a mid-level of Period I A.

12. Signs painted in black pigment over a red slipped surface in the prefiring stage. Only one sign of fish is recognizable while the other one is almost defaced. Fragment of a Harappan red ware jar. From a mid-level of Period I A.

13. Signs painted inside with black pigment over a thin washed red surface in the prefiring stage. Both the signs are incomplete and not recognizable. Fragment of the base of a dish. From a level of Period I A.

14. Sign painted in black pigment over very light red washed surface in the prefiring stage. Sign incomplete. Fragment of a dish in Harappan red ware. From a mid-level of Period I C.

(iii) *Graffiti*

Fig. 85A; Pl. LXXXI

1. Graffiti: Sign, postfiring thin incision. Fragment of the rim portion of a perforated jar heavily encrusted with greenish patination. A human figure (Vats. Pl. CII, CIV., 75).

2. Graffiti: Signs, postfiring thin incision. Fragment of a 'S' shaped jar in Harappan red ware. Signs are: Marshall signs CCXXXVIII, Vats 238 and Marshall CII, Vats 102.

3. Graffiti: Signs, postfiring thin incision. Fragment of a base of a dish. Harappan red ware. From a late level of Period I A. cf. Rangpur I 43.

Fig 85B; Pl LXXXII

1. Graffiti: Prefiring deep incisions on the base of a round open basin. Fragment of a thick Harappan red ware. Lal's symbol 14, also occurs at Kalibangan.[1] From a mid-level of the Period I C. cf. Lothal, Mohenjodaro 471 and Rojdi.

2. Graffiti: Prefiring deep incision on the base of a round open basin. Fragment of thick Harappan red ware. It is a fragmentary sign depicting crossbars ending with circles at the end. A forerunner to the Ujjain symbol of the coins. Rangpur 63, Mohenjo-daro 536 and Rojdi.

3. Graffiti: Prefiring deep incision on a thick jar. Fragment of a Harappan red ware. It is a fragmentary sign, probably a cross with bars ending in leaf-shaped ends. From a mid-level of Period I C.

4. Graffiti: deep incision on a thick jar. Fragment of a Harappan red ware. It is an incomplete sign and probably similar to 6. From a mid-level of Period I C.

5. Graffiti: Prefiring deep incision, on a thick jar of Harappan red ware. Symbol incomplete, probably similar to 6. From a mid-level of Period I C.[2]

6. Graffiti: Prefiring deep incision on a thick jar of Harappan red ware. Symbol similar to 8. From a mid-level of Period I C.

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[1] B. B. Lal, 'From Megalithic to the Harappa:tracing back the graffiti on the pottery', *Ancient India*, No. 16, 1960 p. 11, Pl IC-1-2.

[2] Rao: 1962, p.131, fig. 48, 63.

[Postscript. The inscribed material from Surkotada has also been included in the following two publications: Iravatham Mahadevan, *The Indus Script Texts Concordance and Tables*, Memoirs of the Archaeological Survey of India, No. 77, New Delhi, 1977 and; Jagat Pati Joshi and Asko Parpola (eds.), *Corpus of Indus Seals and Inscriptions* 1. Collections in India, Memoirs of the Archaeological Survey of India, No. 86, Suomalainen Tiedeakatemia, Helsinki, 1987.]

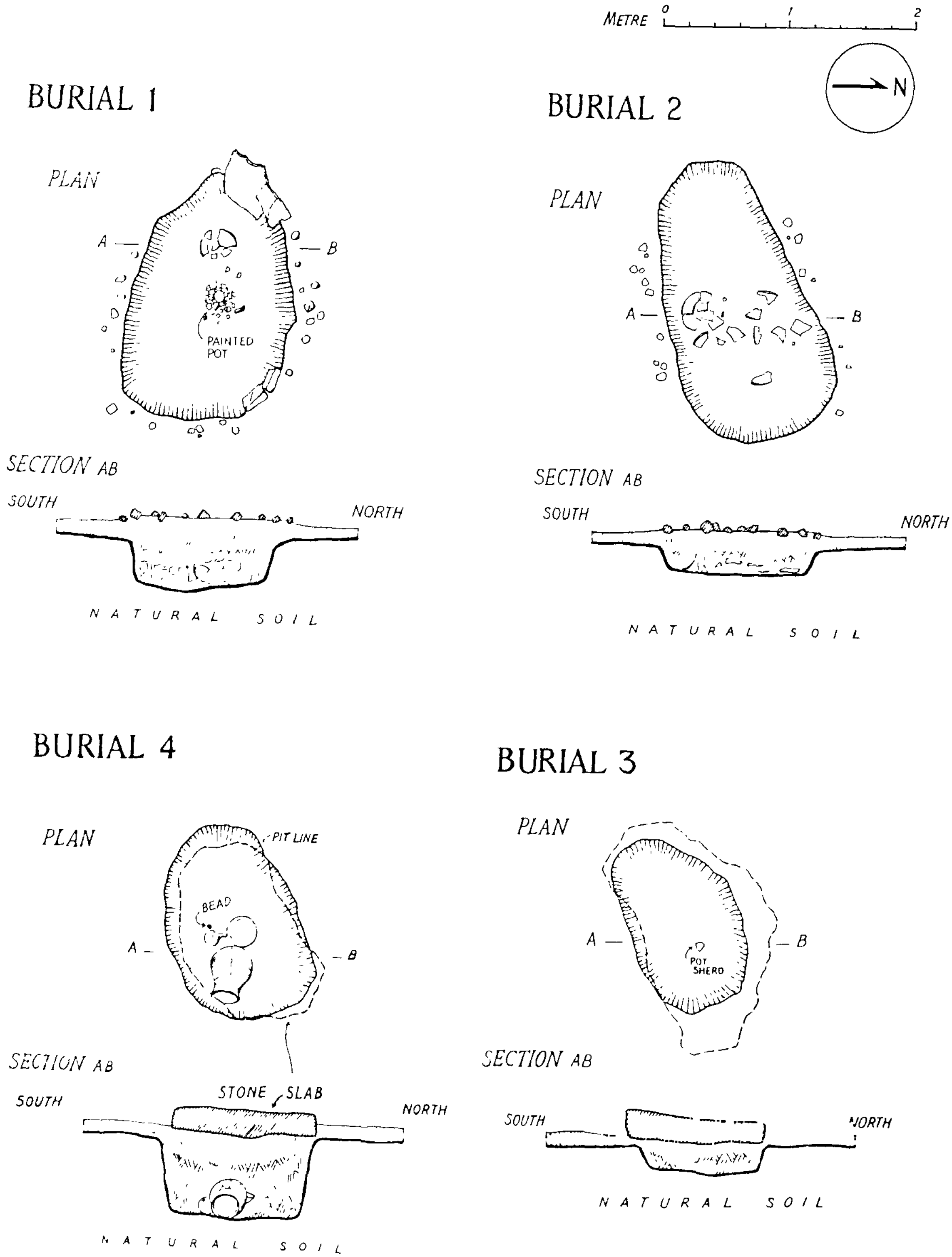


Fig. 86. Burials.

10. POT BURIALS

(1) *Introduction*

Surkotada, primarily a site of Harappan culture, had a cemetery also. It is at present represented by pot burials; some of these burials were in association with secondary internments of *Homo Sapiens Linn.* The other modes of burials could not be known as only a limited area of the cemetery was excavated at the fag end of the excavation. In all, four graves were excavated, which throw considerable light in understanding the mode of pot burials, a symbolic disposal of the dead (Fig. 86).

(2) *Topography of the Cemetery*

The cemetery is located on the northwestern side, 300 m away from the habitation mound at Surkotada at a slightly elevated region. The terrain is rocky with small hillocks interspersed by plenty of sand and low mounds. The Little Rann of Kutch can be seen on the far horizon from the 'necropolis'. Sandstones, laterite, limestone, crystal pieces and jasper nodules are generally met with in the cemetery area. The terrain bears an undulating surface [Pl. LXXXIII].

(3) *Lay out of Pot Burials*

The burials look very much disturbed, perhaps due to the farmer's plough or modern diggings in quest of stones. However, raised tumuli are the indices of likely burials. Practically, it is difficult to distinguish the ancient tumulus from the modern tumulus. Trial digs led to the discovery of burials. In this process six places were tapped in which four graves were discovered and proved to be of an immense cultural value.

(4) *General remarks on Pottery from the Burials and Chronology*

The ceramic contents of graves comprised: (i) Harappan red ware (ii) painted black on red ware and (iii) cream slipped ware with paintings. Amongst these, Harappan red ware pottery is predominant. The painted black on red ware is also available in the cemetery. The shapes of Harappan pottery met with in the cemetery at Surkotada are the water pot, cylindrical vases or jars, vases, bowls, dishes, basins, beakers, dish-on-stand, bowl-on-stand and globular pot (conical flask) with a constricted and tapering neck. The pottery is predominantly wheel-made.

For an idea of relative chronology of pot burials of Surkotada, Harappan dish-on-stand, basins, dishes, bowls-on-stand are supposed to be typical of Period I A; besides, the cylindrical vases with horizontally drawn grooves and a cream slipped vase with an alternate hut and boat design(?) and a squat dish-on-stand have possible Early Indus connections. The absence of pottery of sub Periods I B and I C also makes it evident that these pot burials belong to Period I A.

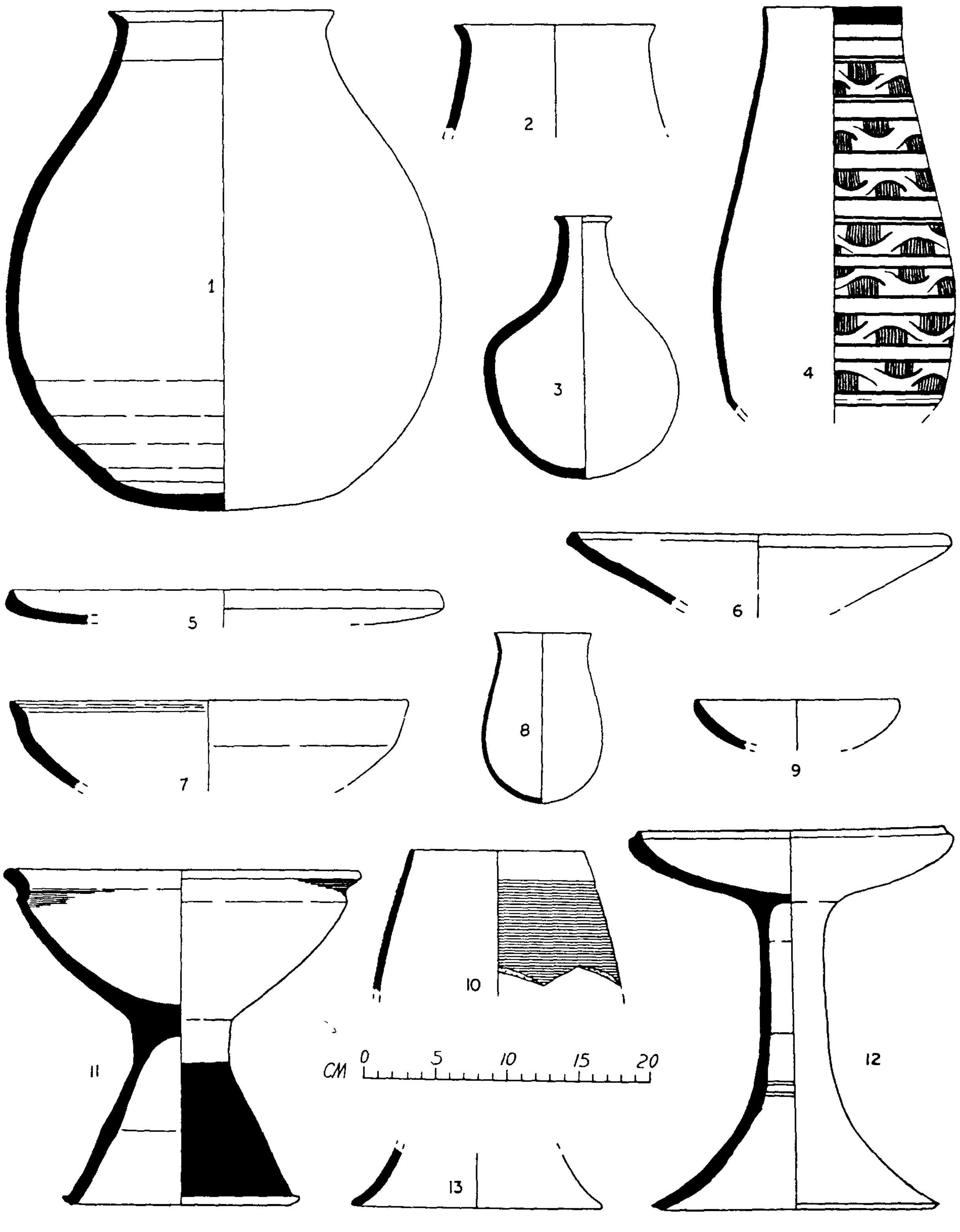


Fig. 87. Pottery from burials.

The earliest C-14 date for Period I A at Surkotada is 2315 B.C. which goes well with the chronology of Harappan culture, i.e., 2300-1750 B.C. It is surmised that the absolute date for the cemetery in relation to the habitation may also be *C.* 2300-2100 B.C. However, the Surkotada burials parallel with Periano Ghundai (2500 B.C.) and Sutkagen-dor (2200 B.C.) and the 'Early Indus' traits found in the burials and also in the habitation suggest a relative date for the Surkotada Cemetery earlier to *c.* 2100 B.C.

(5) *Description of Burials*

(a) Burial No. 1 [Pl. LXXXIV].

(i) *Characteristic features*

On the surface of the grave, there were lots of stones (sandstone, basalt, laterite) in a small heap, distinctly different from the adjoining flat surface, and a vertical slab on the western side. After removal of the cairn of stones the pit line appeared at a depth of 20 cm [Pl. LXXXV]. The vertical stone seen on the surface was found fixed on the western periphery of the pit. On the oval periphery of the pit, two small vertical slabs mark the pit's contour. Further, in the pit there were five laminated stones. It appears that there was a lining of flat stones in a vertical position clearly demarcating the contour of the pit. The grave seems to be very much distrubed. The pit appeared distinct due to the following characteristic features:

1. Pit soil was loose as compared to the hard nature of the stony surface in the adjoining region.
2. The pit soil was light brown in colour.
3. Pottery in the pit.

(ii) *Measurement of the Pit*

The pit appears oval on plan. The north-south axis of the pit measured 1.48 m while east-west axis was 2.02 m. The depth of the pit was 50 cm. It was sealed by the top layer.

(iii) *Funerary Goods*

The pit contained (i) dish-on-stand and (ii) a vase or jar.

(i) Dish-on-stand[1] with a solid cylindrical and elongated stem, flaring towards the base and a shallow dish; wheel-made red ware (Fig. 87:12). This is to some extent similar to Kot Diji[2] offering a stand.

(ii) Vase[3], with a tapering neck, has an almost complete bulbous body with flat

[1] Wheeler: 1947, fig. 11.

[2] Khan: 1965, pp. 76-77, fig. 24, No. 20.

[3] Wheeler, *op.cit.*, 1947.

bottom; wheel-made cream slipped ware. Paintings in black on red, with boat-shaped or cottage-shaped design (Fig. 87:4). The vase is comparable in shape to that of Amri.[1]

(iv) *Skeletal Remains*

The burial yielded some fragmentary, uncharred, human skeletal remains. They also include clavicle and phalangeal parts. The grave represents the secondary and fractional internment of skeletal remains [Pl. LXXXVI].

(b) Burial No. 2 [Pl. LXXXVII]

It appeared as an oblong raised heap of stones in the cemetery. The long axis of the heap is oriented in north-south direction. At a depth of 35 cm a pit line could be discerned. The pit line is traced out on the basis of: 1. Quality of soil filling 2. Colour difference of the filling 3. Pottery spread in the pit.

(i) *Measurement of Pit*

The pit was oval in shape. The longer axis measured 1.95 m. It is oriented in south-eastern to the southwestern direction. The shorter axis or width of the pit measures 1.10m.

(ii) *Contents of Pit*

The pit was exclusively filled with pottery without any trace of skeletal remains. The pottery is of red ware. It includes bowl, basin, dish and vase indicated by fragmentary sherds.

1. Vase fragment in red ware with wide mouth, splayed or flaring rim and straight sides (Fig. 87:2).

2. Dish fragment (possibly shallow) has an uniformly thick base in red ware (Fig.87 : 5).

3. Basin has flaring sides and uniform thickness in red ware. (Fig. 87 : 6)

4. Fragmentary basin having a carination at the shoulder and tapering towards the base in red ware (Fig. 87:7).

5. Rimless bowl fragment (small-sized): with a rounded edge and slightly flaring sides in red ware (Fig. 87:9).

6. Fragment of a cylindrical vase with convex-sides decorated with black horizontal lines or bands painted over the red surface (Fig. 87:10). The shape compares well with the one at Amri[2]. Kot-Diji[3] vessels also indicate distinctive black-painted bands.

7. Fragment of a basin-on-stand is in red ware (Fig. 87:13).

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[1] Casal: 1964, fig. 62, No. 204.

[2] *ibid*, fig. 65, No. 229.

[3] M. Rafique Mughal, 'Present state of Research on the Indus Valley Civilization'. ***International*** *Symposium on Mohenjo-daro*, Feb., 1973 (50th Anniversary of Mohenjo-daro Excavations, 1973), p. 10, fig. 3, No. 1 (Sarai-khola-II), Pl. IV.

7. Fragment of a basin-on-stand is in red ware (Fig. 87:13).

(c) Burial No. 3 [PL. LXXXVIII].

(i) *Measurement*

To the northern side of Burial No. 1, in the slopy terrain, two partly visible elongated horizontal slabs also drew attention. They were found oriented in northsouth direction. North-south axis measured 1.68 m. The east-west axis was 0.98 m. The thickness of the slab is 0.12 m.

(ii) *Pit contents*

On the removal of an exfoliated horizontal slab, a pit line came out in relief. The pit line was approximately oval in shape. At a depth of 35 cm the pit yielded a thick red ware sherd of an urn and very small charred human bone splinters or remains.

(iii) *Significance*

The post cremation human remains found in a burial bear a great significance. The relatives of the dead in all probability out of regard for the deceased used to take care of the burnt or charred bones after submission of the corpse to fire.

(d) Burial No. 4. [Pls. LXXXVIII-LXXXIX].

(i) *Measurement*

The pit of burial No. 4 was oval in shape. It was found to be covered with an almost rectangular exfoliated slab. The slab along the longer axis measured 1.44 m and along the shorter axis 0.82 m. The thickness of the slab is 0.10 m.

Underneath the slab, the oval pit bears dark brown earth and was quite distinct from the adjoining area. The pit measured 1.60 m across the north-south longer axis and along the shorter east-west axis measured 0.82 m.; thickness of the slab is 0.10 m.

(ii) *Contents of the Pit*

The pit represents merely a pot burial devoid of human skeletal remains. The funerary red ware pottery is delicate and includes a globular water pot, a basin-on-stand, a small conical flask and a small terracotta ring. Interestingly the globular water pot contained a redware beaker within. It is interesting to note that pot-burials without bones have been recorded from Kalibangan also.

1. Jar, fragmentary with outturned short rim, concave neck, globular body and a rounded base in red ware. The pot is approximately similar to the one in Surkotada habitation and Chanhudaro[1] (Fig. 87: 4).

2. Conical flask, or small globular pot[2] with constricted and tapering neck in redware (Fig. 87 : 3).

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[1] Mackay:1943, Pl. XXIV, No. 3.

[2] Rao:1962, fig. 39, No. 48, Pl. XXIII A, 4.

4. Bowl-on-stand with a slightly flaring base, almost complete short hollow stem and a black band painted on red surface. This type is not found in the habitation of Surkotada. However this type compares favourably to some extant pedestal footed squat offering stand from Kot Diji.[1]

6. *Direction of Cemetery at important Harappan sites*

The situation of a cemetery in a specific direction in relation to the habitation of Harappan[2] settlements is of considerable significance. It is seen that cemeteries at Surkotada and at Lothal were both located on northwestern sides. To be precise, the cemetery at Surkotada was on the northwestern side of the settlement, while the cemetery at Lothal[3] was on the northwestern corner of the habitation mound. In the case of Kalibangan,[4] the cemetery was located west-south-west of the citadel mound. At Rupar, the cemetery was situated on the western side of habitation mound.[5] R-37 cemetery[6] of the Harappan period was located to the south of citadel at Harappa. From the analysis, it is seen that while the cemetery was always made on the western side of the habitation, a regional variation could be discerned also at Lothal and Surkotada where it is located on northwestern side of the habitation. Another point of distinction is the fact that the cemetery at Surkotada is situated away from the habitation like that at Kalibangan, but at Lothal and Rupar, it is well within the Habitation mound.

7. *Co-relation of the Surkotada cemetery with the other Proto-Historic, Early Harappan and Harappan cemeteries*

The pot burials with no skeletal remains (burial Nos. 2 and 4) that are met with at Surkotada are also found at Kalibangan[7]. The pottery includes predominantly pots and dish-on-stands in both the Harappan cemeteries. In the other Harappan cemeteries like R-37, Lothal and Rupar pot burials are not met with. Therefore, pot burial modes bear a special connotation towards an interesting mortuary practice bearing out the regard of the Harappan folk to their deceased. Moreover, from the socio-religious angle, Surkotada, Kalibangan and Periano Ghundai are also of interest. In Nal[8] and Dambuthi in Baluchistan, the peasant communities of the Bronze Age also have a fractional burial or inhumation of fragments of human skeletal remains after previous exposure and disintegration. This aspect is comparable with the Surkotada burial No.1.

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[1] Khan:1965, p. 46, fig. 11, No. 4.

[2] cf. *I.A.R.*, 1954-55, p. 12, Pl. XVII B. A huge earthern jar covered by a stone with a course of bricks all round was found to contain a few pieces of bone, a copper bangle and a copper arrow head and might have been a burial.

[3] Rao, *op.cit.*, 1962.

[4] B.B. Lal and B.K. Thapar, 'Excavations at Kalibangan', *Cultural Forum* No. 34, Vol. IX, No. 4, July, 1967, p. 85.

[5] Y.D. Sharma , 'Past pattern in Living as unfolded by the Excavations at Rupar', *Lalit Kala*, No. 2 (1956), p. 122.

[6] Wheeler: 1947, pp. 58-130.

[7] Lal and Thapar, *op.cit.*, pp. 78-88.

[8] Stuart-Piggott, *op.cit.*, 1950, p. 81 and H. Hargreaves, Excavations in Baluchistan, 1925, Sampur Mound, Mastung and Nal, *M.A.S.I*, No. 35 (New Delhi, 1929).

Cremation[1] seems to be the rite in the Zhob culture and probably also in Kulli. At Tarkhanwala Dera[2] (Dt. Sri Ganganagar, Rajasthan) a cremation ground of the Harappa culture has been identified and is of interest. Mehi[3] also records a 'cremation ground'. It has been also reported from Kalibangan that in one of the extended burials (burial No. 32) an inciser and canine of the lower and upper jaw were found charred. Burning marks were also detected on the right rib, hip bone and leg bones. This practice clearly indicates at least a symbolic cremation.[4] At Surkotada, in burial No. 3 post cremation, human calcined skeletal remains have been found. Post cremation internment in a pit is another point of interest in the disposal of the dead by the Harappans. However, post cremation urnburials in many habitations are met at the sites of Periano Ghundai[5] (*c.* 2500 B.C), Mehi[6] (*c.* 2000 B.C.) in south Baluchistan, Sahi Tump[7] (*c.* 1800 B.C.) and Sutkagen-dor[8] (*c.* 2200-1900 B.C.) in western Makran.

In general, Surkotada cemetery pottery is comparable with the 'necropolis' Harappan pottery of Harappa R-37, Lothal, Chandigarh, Kalibangan and Rupar. However, the squat dish- on-stand and painted cylindrical vases are comparable to the 'Early Indus' tradition.

Pot burial mode at Surkotada is apparently not a local invention and is different from the general extended burial practice of the Harappans. Though the other types of burials could not be located at Surkotada, the possibility of their existence cannot be ruled out. Such types were recorded at Kalibangan and Rupar, signifying an autochthonous extended burial custom prevalent among the population. The modes of disposal of the dead at Surkotada are as following.

1. Exclusively pot burial,
2. Post-exposure burial along with pottery,
3. Post-cremation burial along with pottery,
4. The feature of a horizontal slab on top of the pit,
5. Marking a grave with a vertical stone lying in the pit and putting a vertical slab on the western side along with the cairns, and
6. Cairns on the top.

These factors on the other hand lead to the inference of an heterogenous population at Surkotada. It is difficult to comment on the ethnic elements or physical types because of the lack of skulls in the pot burials at Surkotada.

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[1] Piggott, *op. cit., 1950,* p. 93.

[2] Gupta: *op.cit.*, 1972, p. 70, Pl. XI.

[3] *ibid.*, pp. 37-39.

[4] Information from Shri A.K. Sharma.

[5] Stein: 1929 and Gupta, *op.cit.*, 1972, p. 33-35, fig. 4.

[6] *ibid.*, p. 37.

[7] *ibid.*, p. 42.

[8] *ibid.*, pp. 45-46 and 52.

11. TECHNICAL REPORTS

A. ANIMAL BONE REMAINS

I. *State of Preservation*

Faunal remains from Surkotada belong to Periods IA, IB, and IC ranging from 2315 B.C. to 1700 B.C.

Most of the bones obtained from the excavations are generally muddy brown in colour though some of them have either greenish brown or red-brown shade. The greenish brown colour is mainly due to the ashy deposit from where they were recovered. The colour of the bones indicate that they must have been wet when discarded. Wet bones alone are hydroscopic. Some have got heavy encrustation.

The surface encrustation, by ash, has sealed the pores of the haversion canals present on the surface of the bone, thus preventing the entry of either the organisms or the enveloping matter. This has preserved the character of the bones. In some cases colour of the soil has entered deep into the structure of the bone substance. Some of the collections from the lowest levels are in semi-fossilized condition though their maceration (removal of contained animal matter) is not yet complete. Some have developed surface gloss at certain places. In the lower levels the most stable change in bones is the metallicity of the sound and the heaviness of the fragments. The result of the volumetric examination indicates that there is nearly 500% gain in weight. The structure of the bone tissues, under lens magnification, presents no alterations. Hence, it can be inferred that the changes are intercellular and not interestitial.

Most of the collection is extremely fragile and in fragmentary condition. This is particularly due to the arid condition of the soil and presence of salinity in the area. Most of them are parts of shafts of long bones and very few are epiphysis or diagnostic parts. They can not be subjected to mathematical measurements to assess the mean dimensions.

II. *Nature of the Collection*

The collection includes a good number of charred bones, the intensity of charring varying from light to very heavy. It appears that many of them got charred in the process of roasting (as is evident from their find spots), obviously for meals. A general observation shows that normally the bones from lower levels are larger in size and robust than their counterparts from the upper levels.

Carpals, tarsals and phalanges have generally been found in intact condition, whereas the long bones normally bear numerous cracks and cut marks. This might be due to the hard and compact texture of the first category of bones which allowed them to escape the men's search for the contained marrow.

The collection could be broadly classified into three categories:

1. Animals which were either domesticated or were in the process of domestication.
2. Animals that lived in the houses or in the vicinity of the habitation.
3. Wild animals including those that were hunted for food.

A closer examination of the collection has yielded a good number of very crude, hurriedly made bone tools such as scrapers, piercers, points, etc. mostly made from split shafts of long bones. These bear impressions of having been used for scrapping the roasted flesh adhering to the bone. They have already been described in detail elsewhere.

III. *Species Identified*

The excavation has yielded representatives of twenty two species. Overwhelming faunal remains both quantitatively and in variety of species belong to Period IC. The collection represents vertebrate animals (invertbrates have been described elsewhere), cattle out numbering all other animals followed by sheep and goat.

1. Class-Pisces (Fish)
   Carps and *Rita rita* (Ham, Buch)
   Present in Period I A, I B, I C [Pl. XC-10].

2. Class-Reptilia
   Chitra indica
   River Turtle
   Present in Period I A, I B, I C.

3. Desert snake. Present in Period I C

4. Class-Aves (birds)
   The fowl
   Present in Period I A, I B, I C.

5. Class-Mammalia
   Order-Insectivora
   The Shrew
   Present in Period I C [Pl. XC-9].

6. Order-Carnivora
   Herpestes auropunctatus (Hodgson)
   The small Indian Mungoose
   Present in Period I B.

7. *Canis lupus nallipes Sykes*
   The Indian Wolf
   Present in Period I B.

8. *Canis aureus* Linn
   The Jackal
   Present in Period I A, I C.

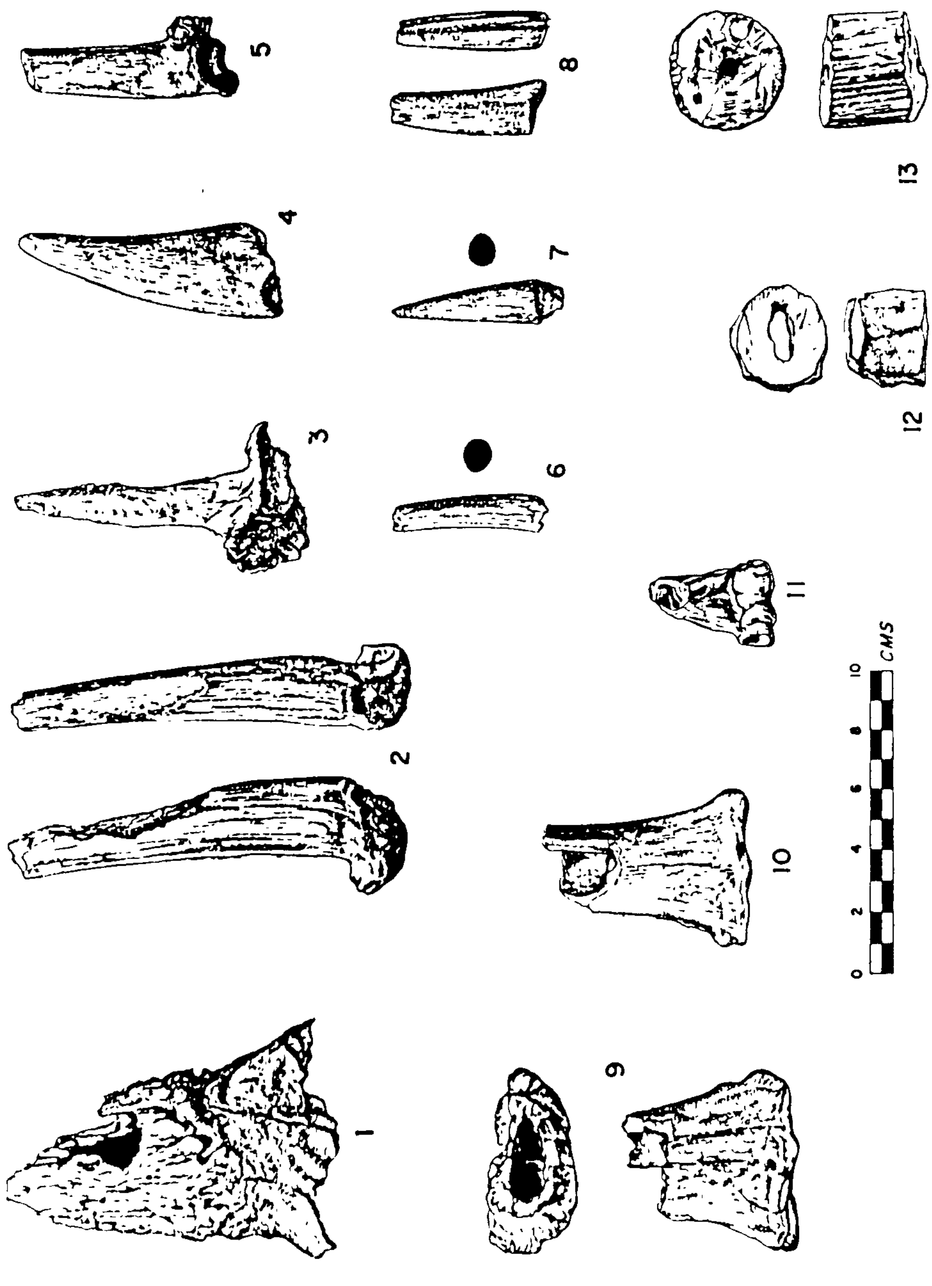


Fig. 88. Animal bone remains.

9. *Canis familiaris* Linn
The Domestic Dog
Present in Period I A, I B, I C.

10. Order - Perissodactyla
Equus Caballus Linn.
The Horse
Present in Period I A, I B, I C.

11. *Equus hemionus Khur and Equus asinus* Linn
Present in period I A, I B, I C.

12. *Rhinoceros unicornis*
Rhinoceros
Present in Period I C.

13. *Order - Artiodactyla*
Bos indicus Linn.
The Indian Humped Cattle
Present in Period I A, I B, I C.

14. Family - Caprinae
Capra hircus aegagrus (Erxl.)
The Domestic Goat
Present in Period I A, I B, I C.

15. *Ovis vignei* Blyth, race *domesticus*
The Domestic sheep
Present in Period I A, I B, I C.

16. *Axis axis* (Erxl)
The Chital or spotted deer
Present in Period I A, IB, IC.
Pl. XCI-9, 10; Pl. XCII-1, 2, 4; Pl. XCIII-4, 9; Pl. XCIV-2, 3, 6, 8; Pl. XC-1, 2; Pl. XCV-6, 9, 11;
Fig. 88: 2, 5, 12, 13.

17. *Camelus dromedarius* Linn.
The one humped Camel
Present in Period I B, I C.

18. *Sus scrofa cristatus* Wagner
The Indian Domestic Pig.
Present in Period I A, I B, I C.

19. *Rattus rattus* Linn.
The common Indian Rat
Present in Period I A, I B, I C. [Pl. XC-9]

20. Order *Lagomorpha*
Lepus nigricollis ruficaudatus F.
The Rabbit
Present in Period I C.

21. *Lepus Nigricollis Cus*
The Indian Black naped Hare
Present in Period I C.

22. Order - Proboscidea.
Family - Elephantidae
The Indian Elephant
Present in Period I C.

IV. *Distribution of Vertebrates*

Period I A - Fish, River turtle, Fowl, Jackal, Dog, Horse, Ass, Cattle, Goat, Sheep, Deer, Camel, Pig, Rat.

Period I B - Fish, River turtle, Fowl, Mungoose, Wolf, Dog, Horse, Ass, Cattle, Goat, Sheep, Deer, Camel, Pig, Rat.

Period I C - Fish, River turtle, Desert snake, Fowl, Shrew, Mungoose, Jackal, Dog, Horse, Ass, Rhinoceros, Cattle, Goat, Sheep, Deer, Camel, Pig, Rat, Rabbit, Hare and Elephant.

V. *Percentage of Animals: Periodwise*

Species	Period I A	Period I B	Period I C
Cattle	39.2%	29.8%	45.6%
Capra	20.16%	29.4%	18.3%
Rodent	6%	6%	3.24%
Deer	2.4%	3%	2.57%
Jackal	1.2%	-	0.21%
Fish	4.4%	2.40%	1.28%
Pig	3.2%	1.5%	2.37%
Dog	4%	3.3%	3.64%
Horse	1.2%	2.2%	1.49%
Ass	1.2%	0.81%	3.64%
Fowl	5.2%	5.7%	4.32%
Wolf	-	0.4%	-
Camel	-	0.4%	0.21%
Hog	-	0.04%	0.42%
Shrew	-	-	1.08%
Snake	-	-	0.21%

Species	Period I A	Period I B	Period I C
Rhinoceros	-	-	0.21%·
Hare	-	-	0.64%
Rabbit	-	-	0.21%
Misc.	11.84%	15.5%	16.36%
Total	100%	100%	100%

Bos Indicus Linn. (The Indian Humped Cattle):

Generally in all bone collections from excavations, bones of cattle outnumber others. At Surkotada also cattle bones form the largest bulk from all the periods. With heavy build, pronounced dewlap and shortish simple curved horns, cattle at the site clearly indicate a domesticated variety - *Bos Indicus* Linn. The broad, flat cleft spine dorsalis of the thoracic vertebrae and the flattening of the median condyle of the trochlea of humerus are also indicative of the same. *Bos Indicus* Linn. from very ancient times, is almost the sole type of domestic cattle of Asia and Africa and has undergone little structural changes than the European forms. It has been duly identified at other Harappan sites like Harappa, Mohenjodaro, Rupar, Kalibangan, Lothal and Rangpur.

At Surkotada the largest concentration of cattle bones was in Period I C, more than 45% of the total collection from the period. From nearly 40% in Period I A, the population of catle decreased in Period I B with corresponding increase in the population of sheep and goat. This is indicative of the fact that due to some reasons (may be drought conditions as indicated by some examples of rarifaction of long bones which is caused by decrease in availability of good quality of fodder) herds of cattle could not be looked after properly.

The evidence that the largest number of bones bearing cut and split marks as well as charred ones belong to cattle shows that in all the periods cattle meat formed a substantial part of the diet. Splintered bones were also preferred for tool making. A closer examination of the third phalanx (found in good number) of cattle shows the increase of pedosis and exostosis towards upper levels pointing to the increasing dependence of men on this animal for draft purposes. The bony growth on third phalanx shows that the people were practising a lot of agriculture that required the use of cattle. This is also corroborated by the presence of effects of anchylosis in some specimen of cattle bones. Animals used for heavy traction or prolonged draft work are the common sufferers of this disease.

Pl. XCVI-1,2,5; Pl. XCVII-2,3,6; Pl. XCI-1, 4,8,11; Pl. XCII-3,5,9; Pl. XCIII-1,2,5,6,7,10; Pl. XCVIII-1,3,6,7; Pl. XCIV-1,4,7;

Fig. 88; 1,3-4; Fig. 89; 1-3,7-8

Ovis and Capra (Sheep and Goat) :

Sheep and goat bones form the next largest number in the collection and occur in all the periods in the site. There is 50% increase from Period I A to Period I B and slight decrease in Period I C. This shows that with more cattle breeding the raising of capra

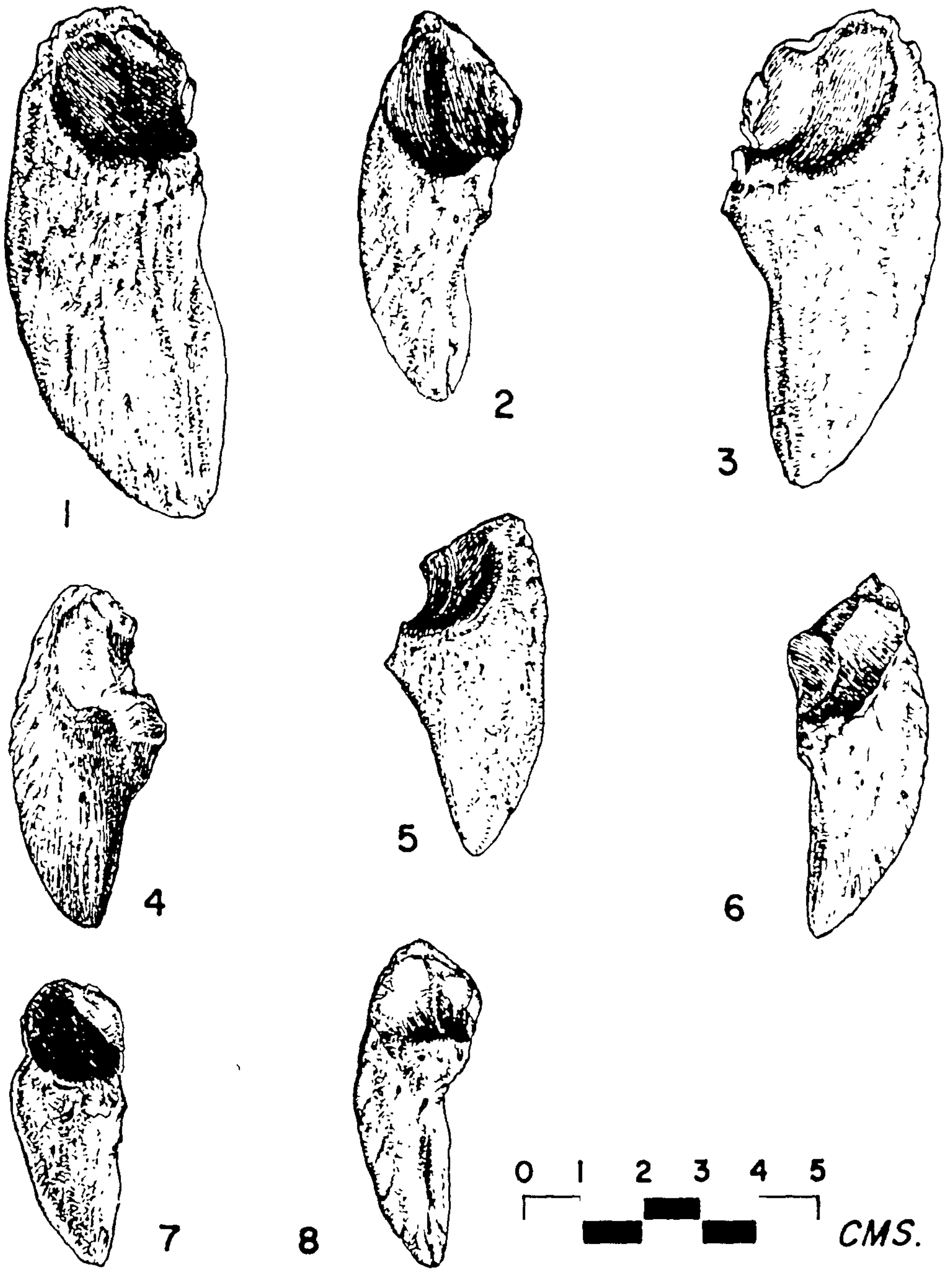


Fig. 89. Animal bone remains

got less attention as the importance of cattle, both as food and as work animal, as compared to sheep and goat was realised.

The variety of the domestic sheep with very short horn occuring at Surkotada have also been reported from Lothal, Rangpur, Kalibangan, Harappa, Rupar etc. *Capra hircus aegagrus,* the domesticated goat also occurs at the above mentioned sites. Both the species were domesticated locally.

After cattle, sheep and goat were the largest group of animals slaughtered for meat. They were also reared for the purpose of obtaining the much needed wool. The number of unworn teeth and unfused epiphyses of the bones indicate that these animals were slaughtered when young. Some, particularly sheep, were roasted without being dismembered as is evident from the superficial charring marks on some specimen. The size of the horn cores indicates that the animals were of medium size. Most notable skeletal changes that have occurred with domestication are shortening of jaws lengthwise and breadthwise as well as the straightening and shortening of the horns. Skulls, being delicate, are hardly present in the collection.

Pl. XCVII-1,7,8; Pl. XCI-5,7; Pl. XCII-6,7,8; Pl. XCIII-3,8; Pl. XCVIII-2,4,5; Pl. XCIV-5; Pl. XC-3,4,8; Pl. XCV-1,5,7,8,12;

Fig. 88; 6-8; Fig. 89; 4-6.

Sus (The Pig):

The pig remains have been indentified from most of the sites in India. In Harappan context it has been reported from Harappa, Mohenjodaro, Rupar, Lothal, Rangpur, etc. According to recent observations there is no specific difference of morphological importance between *Cristatus* Wagner (Indian Pig) and *Scrofa* Linn (European Pig) and accordingly Indian pig is classified as *Sus scrofa* Linn. The Indian domestic pig is the domesticated form of the wild *Sus Scrofa* Linn. The largest population of Pig was in Period I A (3.2%). It suddenly declined to nearly half in Period I B and then again rose to 2.3% in Period I C at the site. It was reared for food. The considerably lesser percentage of this animal at the site as compared to cattle, sheep and goat shows that pork was not much preferred by the inhabitants of Surkotada and was probably kept only by a section of the population. [Pl. XCVI-4,6]

Canis (The Dog):

Indian wolf *Canis lupus* is probably the ancestor of the domesticated dog in India as the evidence has shown at Burzaham and Gufkral (Kashmir).

The earliest domestic species *Canis familiaris* Linn. first appeared during the Neolithic period at these sites. Two distinct types of dogs domesticated in India are: i) a type akin to Pariah and ii) a mastiff type.

The Harappan dog resembling the Pariah comes near to the original ancestral type of dog found in the Oriental region in diluvial times. This dog also shows close resemblance and affinity with Anau dog - *Canis familiarize matris Optimae* Jeitteles and the shepherd dog. Remains of Canis farmiliaris Linn. have also been recorded from Rupar, Lothal, Rangpur, Kalibangan and other sites. They show resemblance with the modern pariah.

The presence of the dog at Surkotada was almost consistent throughout the occupation of the site. It was being used as a watch animal, particularly by the herdsmen. Size of the bones found indicate that the dogs of Surkotada were of medium size [Pl. XCVII-4,5].

Gallus (The domestic fowl):

Bones of (Chicken) have been identified at Harappa, Rupar, Lothal and Kalibangan. At Surkotada they have been found from all the levels but surprisingly there number gradually decreases from lower to upper levels. This indicates that poultry farming was slowly going out of favour, though it formed the third group of the food supply. Parts recovered are mostly humerus, femur and scapula and bear cut and gnawing marks [Pl.XCIV-5,6,7].

Camelus (The Camel):

Camel widely used for transportation, particularly in deserts, appeared later than the ass but earlier than the horse in the prehistoric times. It was extensively used by the Assyrians from the 9th century B.C. onwards[1]. To day no wild variety exists. Bones of one-humped species (*Camelus dromedarius* Linn.) were found at Mohenjodaro, Harappa and Kalibangan. Prashad[2] opines that the Indian one humped camel is undoubtedly the descendant of the Siwalik form, *C. sivalensis* Falc. and Cautley and its domestication was first brought about in India probably in the Indus Valley.

At Surkotada the species represented is *Camelus dromedarius* Linn. (the Indian one humped species). It occures only in Period I B and I C and is represented by one fragment each. The very scarce occurrence of bones of this animal at Surkotada probably indicates that it was not available in the area but the lone animal was probably only a guest from the neighbouring Harappan sites in Rajasthan [Pl. XCIX].

Elephas (The Elephant):

Parts of only tusks were found from the uppermost levels at Surkotada. They were probably imported from neighbouring area for making ornaments. Similar is the case at Mohenjodaro[3], Lothal[4] and Kalibangan[5] from where also only tusks of *Elephas maximus* Linn. was recovered.

Though no bony remains of this animal have been found from many of the Harappan sites, its representation on the seals shows that Harappans had knowledge of this animal. In Indian cultural context it is normal not to find skeletal remains of elephants in the sites as their meat is never eaten and after death they are buried away from the habitation [Pl. C].

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[1] Piggot, *op.cit.*, 1950, p.156

[2] B. Prasad, *M.A.S.I.*, No.51, 1936, p 9.

[3] R. Sewell in Marshall, *op.cit.*, 1931, p.653

[4] Bholanath, *Records of the Zoological Survey of India*, Vol. 61, Nos. 1-2, pp. 1-63.

[5] S. Banerjee and R.N.M. Mukerjee, *Current Science*, April 10, 1976.

Rhinoceros Unicornis - Linn. (The one horned Indian Rhinoceros):

Only few bones of one horned Inidan Rhinoceros have been recovered from the last period at Surkotada. The interesting find is the unicorn. Bone fragments of this animal have also been reported from Harappa and Lothal but the unicorn has been found only at Surkotada. Formerly this animal was extensively distributed in the Indian Peninsula. It was common in the Punjab as far as Peshwar at the time of Emperor Babar[1]. It is still found in Rann of Kutch but the population is decreasing day by day due to poaching to obtain the valuable unicorn which is believed to have medicinal and aphrodisiac values.

Equus (The Ass and Horse):

The most controversial and sought after animal in Indian archaeology has been the horse. Some archaeologists and historians are of the view that the arrival of the horse in India is linked with the so-called 'Aryan invasion'. While a section of scholars tend to believe that the Harappans were Aryans, others dismiss the premise on the plea that the study of the animal bones from different excavated Harappan sites has not yielded sufficient number of bones of true horse (*Equus Caballus* Linn).

At Surkotada from all the three periods quite a good number of bones of horse (*Equus Caballus* Linn, Pls. CI, CII, CIII-1,2,5,6; CIV-1,5,6) and ass (*Equus asinus* Linn, Pls. CIII-3,4,7,8; CIV-2,3,4,7, and *Equus hamionus* Linn) have been recovered. The parts recovered are very distinctive bones: first, second and third phalanges and few vertebrae fragments.

The Little Rann of Kutch is the home of Indian wild ass (*Equus hamionus* Khur). Even today they are found on these islands or *bets* and on the shores of the main land but their number is fast dwindling. These wild asses are the only true wild asses left in the world except for the kiangs of Tibet about which little is known. In 1962 their estimated number was only 870. Earlier they had a fairly wide distribution in the dry regions of northwest India and West Pakistan. During the last century they existed as far north as Jaisalmer and Bikaner and Sind and Baluchistan. They normally breed every alternate year. The decline in the population of wild ass is due to direct destruction by man. Foals were caught for sale and full grown ones were shot for food. Their testes are believed to possess aphrodisiac qualities.

F.E. Zeuner[2] reports that in Gujarat and elsewhere horse sacrifices were important part of religious rites from Neolithic Age onwards.

The Indian wild ass bears a strong resemblance to the Persian wild ass (*Equus hamionus* onager). The bones of *Equus hamionus* Khur recovered from Surkotada probably belong to those ones which were hunted for food. The evidence of a few charred bones further point out to this assumption. The people of Surkotada might have been adopting the same practice for breeding of the domesticated ones as is even now prevalent along the border of the Rann of Kutch. Here the local people allow their donkey herds to mate

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[1] Prasad, *op. cit.*, 1936, p.30.

[2] F.E. Zeuner, *History of Domesticated Animals*, (London, 1963), p.332.

with the wild asses in order to produce a particular type of strong, powerful animal able to carry heavy loads. The hybrids resemble the wild assess and it is often difficult to tell them apart. In the Ahmedabad Zoo a hybrid *Equus hamionus* Khur x *Equus Caballus* resembles a wild ass in appearance.

Equus asinus Linn has been reported from other Harappan sites like Harappa, Rupar, Rangpur and Kalibangan (*E.hamionus* pallas). The bones of horse (*Equus Caballus* Linn) recovered from Surkotada belong to the animal of medium height but strong build. Earlier evidence of horse was reported from a late level at Mohenjo-daro. The finds from Harappa were earlier disputed but later on Bhola Nath[1] reported the remains of horse (*Equus Caballus* Linn) from the unworked collections from Harappa, where he found the fragmentary mandible with teeth and limb bones belonging to true horse. He declared that it was the first record of true Horse!. He had also reported the presence of horse from the late period of Harappa culture at Rupar and Lothal. Subsequently, after the discovery of the horse from Surkotada was declared, it has also been reported from Kalibangan. Dr. Alur[2] reported the presence of horse from the Neolithic-Chalcolithic levels at Hallur (1600 B.C.). Alur and Sharma (unpublished) could identify some *Equus Caballus* Linn. bones from the late-Harappan site of Malvan (Gujarat).

At Surkotada the occurrence is almost evenly distributed throughout the period of occupation. The population was slightly more in period I B. The animal was mainly used for transportation and was possessed only by few affluent ones as is the case even today in the area where till recently possession of a horse was considered a sign of status.

Apart from the above described species the rest were the ones that were primarily captured and killed for the purpose of food. A good number of bones belonging to fish, deer, wild boar, etc., bear cut marks and are also found occasionally in charred condition. Evidence of extraction of bone marrow from various parts are in plently.

VI. Discussion

The faunal material collected from different periods at Surkotada gives a vivid picture of man-animal relationship. They also indicate the food habits of the people. Recovery of the specimens belonging to very few wild varieties indicate that the surrounding area was not highly wooded. The largest percentage of animals are those of cattle and capra From the nature and size of the bones, they appear to belong to the pastoral culture. Occurrence of a large number of immature bones also point out to this effect.

Presence of a large number of rodent bones with percentage almost remaining constant in all the periods indicate about the stable life and food habits of the people. Lot of grains were being cultivated, stored and consumed. Rodents usually appear where food storing habit is seen.

The volumetric examination of bones reveals that these are comparatively heavier

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[1] Bholanath, Remains of the horse... from prehistoric site of Harappa (west Pakistan), *Proceedings*. First All-Inida Congress of Zoologists, Pt. 2, 1959, pp-1-14.

[2] K.R Alur in M.S Nagarajarao, *Protohistoric Cultures of the Tungabhadra Valley*, (Dharwar, 1971)

in Period I A & I C and slightly lighter in Period I B. This shows that in Periods I A and I C there was plenty of fodder and animals were well fed whereas in Period I B, for some time, they were undernourished probably due to scarcity of fodder caused by drought conditions.

Practice of animal husbandry and poultry farming was well established and almost every family was in possession of cattle and capra wealth. They needed cattle for draft purposes and also for agricultural operations. For transportation horse and ass were available whereas camel was scarce. Horse was the privilege of only few. Cattle always dominated over capra population as capra were reared for meat and wool whereas cattle apart from providing food was also useful for agricultural operations. The evidence of exostosis and ancylosis in cattle bones shows that they were used for draft purpose also.

The reason for rearing and raising more cattle as compared to sheep and goat is also due to the fact that the yield from a single cattle kill is many times the amount of meat produced from the slaughter of a sheep or goat.

Slow decline in the population of pig shows that this animnal was not much favoured as it was perhaps considered to be unclean even at that time.

Low percentage of wild animals pointing to limited animal hunting was due to reliable plant food availability throughout the year. Normally primary subsistence dependence on plant food remains regardless of increase in animals, as long as the climatic conditions for agricultural operations are favourable.

On the basis of animal species identified at Surkotada it appears that the terrain of the area was not much different from the present one, but the climatic conditions were more favourable and fresh water was easily available in plenty, allowing the growth of comparatively more thick vegetation and agriculture around. But due to the marshy character of the land, tidal marshes stretching well into the interiors, the quality of grass grown was very inferior and generally not relished by cattle.

B. SHELL REMAINS

(a) Introduction

The collection contains both marine and fresh water molluscs. A study of these reveals a varied use of shells such as for ornaments, food, and also probably for currency.

In the collection there are in all 127 specimens representing sixteen species belonging to eleven families (see below). Majority of the collections belong to typical pyrum species. Some fragment of Chank are heavily charred indicating their probable use for medicinal purposes. The presence of complete shells of Chank, shoulder and body pieces with sawing mark and a large number of columnellar pieces provide convincing evidence that Chank bangles were in great demand and the factories were located in the settlement itself. The people of Surkotada had a fairly good knowledge of the art of shell cutting for the manufacture of bangles and ornaments, etc. They were also in constant touch with sea shore and sea shells were imported for the local bangle and allied industries. The period wise incidence of shells at Surkotada is as under:

Family	Period			Total
	I A	I B	I C	
Cypraeidae	1	-	4	5
Buccinidae	-	2	-	2
Olividae	-	1	-	1
Xancidae				
Complete chank	-	-	6	6
Waste body fragment	5	-	7	12
Waste shoulder fragment	4	1	-	5
Naked columnella	12	12	41	65
Clausilidae	-	-	2	2
Zonilidae	-	-	4	4
Turritellidae	1	1	5	7
Pramidellidae	-	-	1	1
Unionidae	-	1	7	8
Corbicidae	-	1	-	1
Pectinidae	-	1	7	8
Total	23	20	84	127

As[1] compared to Kalibangan, another Harappan site far away from the sea coast, the ratio between shell bangles and terracotta bangles is higher at Surkotada. While at Kalibangan, terracotta bangles outnumbered their shell counterparts, the reverse is the case at Surkotada.[2] This is due to the availability of the different raw material at these places; Kalibangan being far away form the sea coasts, it was difficult and uneconomical to import a large quantity of marine-shells whereas at Surkotada it was easily available at a very short distance. Another point that influenced the choice of material was that the clay at Kalibangan, being of fine silt variety, was better suited for the manufacture of bangles than at Surkotada where it is kankary and ferruginous.

Surprisingly, none of the complete Chanks in the collection has its apex smashed as was the evidence recorded by Dr. Ray at Nevasa.[3] Some shells such as *Lamellidens marginalis* and *Olivancillaria nebulosa* were probably used as food. The valves of fresh water mollusca were also used as feeding spoons. Presence of cowrie shells indicate their probable use for monetary purposes and also for playing.

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[1] Author's own observations.

[2] The Bagri women, the local folk of Kutch, still use shell bangles profusely. They comprised a major portion of the labour employed in our excavations at Surkotada.

[3] H C Ray, 'Shell remains from Nevasa Excavation' in H.D. Sankalia, S.B. Deo and Z.D. Ansari, *From History to Prehistory at Nevasa* 1954-56, (Poona, 1960), p. 540.

(c) *Systematics*

Phylum - Mollusca.
Class - Gastropada.
Family - Cypraeidae

(i) *Monetaria moneta moneta*

SKTD-254 Only one shell of cowrie has been recovered from a late level of the Period I C. It measures 23 mm in length, 15 mm in width and 12 mm in height

(ii) *Gratiadusta pallida pallida*

Three example of this type are represented in the collection.

SKTD-871: From an early level of the Period I A. It is a banded variety having two bands and a reddish shining surface with length 44 mm, width 25 mm, and height 21 mm [Pl. CV, 8].

SKTD-894: From a mid-level of the Period I C. Length 44 mm, width 28 mm, with height 23 mm.

SKTD-388: From an early level of the Period of I C; length 41 mm, width 24 mm and height 20 mm.

(iii) *Cypraea tigria*

SKTD-467: From a mid-level of Period I C. The dorsal surface is having coloured spots which are partly worn out. Length 63 mm, width 42 mm, and height 35 mm [Pl.CV, 9]

Family-Buccinidae

(iv) *Cantharus spiralis*

There are two specimens of this family.

SKTD-1292: From a late level of Period I B; length 86 mm, width 77 mm and in height 62 mm [Pl. CVI, 4].

SKTD-1993: From a late level of the Period I B. Length 82 mm, width 58 mm [Pl. CVI, 3].

This shellfish whose upper surface is spiral and whose walls are thin, is collected on the Konkan coast for food. They also occur on Mauritius, Bombay and Madras coasts.

Family-Olividae

(v) *Olivancillaria nebulosa*

Only one specimen of this family is available. It is a marine form normally available on the sandy shores of Indian seas.

SKTD-3001: 35 mm in length and 12 mm in diameter. From a mid-level of the Period I B.

Family-Xancidae

(vi) *Xancus pyrum pyrum*

Naked Columnellar pieces:

These are the remnants of both large and small, developed and young Chank shells. The largest one is 153 mm in length, while the smallest is 53 mm in length. Majority of them show sawing marks. Hornell[1] says that such collumnellar piece are used by some hill tribes in North-Eastern India as ear or hair ornaments. We have one example of this kind from our collection.

SKTD-154: From a mid-level of the Period I C. It is barrel shaped and has been polished on all sides and shaped as an ear stud with a slight groove in the centre [Pl. CV, 5]. Length 55 mm, diameter 19 mm.

Out of a total number of Sixty five columnellar pieces, sixteen bear three distinct folds on the oriel part. Two specimens from mid-level of Period I C, *SKTD-1698* and *SKTD-1220* and one from Period I A, *SKTD-269* are charred.

SKTD-854: It bears rubbing marks on one side. From an early level of period I A.

SKTD-549: From a late level of the Period I A. [Pl. CVI, 8].

Waste shoulder-fragments:

Five specimens, four from Period I A and one *SKTD-2193* from an early level of the Period I B. These are the left overs of the Chank shells after the removal of bangles. They bear sawing marks.

SKTD-1426: From an early level of the Period I A [Pl. CVI, 7].

Waste body fragments:

There are twelve waste fragments from the body of the shell, all except one showing sawing marks. These are leftovers after taking out pieces for bangles. Five are from the Period I A and seven from the Period I C.

SKTD-864: From an early level of Period I A [Pl. CVI, 6].

SKTD-1759: From a mid-level of Period I C. This is a heavily charred body fragment and does not show any sawing mark. Might have been burnt for medicinal purposes [Pl. CVI, 5].

Complete Shells:

The collection consists of six specimens, two complete [Pl. CVI, 1 & 2] and four slightly broken. All are of the threefold type and belong to Period I C.

The largest one, the SKTD-671 from a mid-level of period I C, [Pl. CVI, 1] is 147 mm long and 80 mm in diameter. Smallest one is 61 mm in length and 29 mm in diameter. Apexs of all are intact showing that they were not used for blowing purposes.

Family Clausilidae

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[1] J. Hornell, *Memoir Asiatic Society of Bengal*, Vol III, 1913, p. 413

(vii) *Clausilia laminsta* (Plaited doorshell, white variety). Only one specimen is present.

SKTD-1179: From a mid-level of Period I C, length 12 mm, diameter 5 mm.

(viii) *Clausilia. . . .* (Slippery moss shell)

SKTD-1145: Sixteen specimens, all from the mid-level of Period I C.

Family-Zonitidae

(ix) *Hyalinia collaria*

SKTD-1133 & SKTD-1217: Four specimens are presents, all from a mid-level of the Period I C. Scarcely exceeding half-an-inch across, it is flatter and yellowish above, the below being white. Found under brick rubbish, under logs and stones in woods and in mossy hedgerows.

Family-Turritellidae

(x) Turritella communis, Risso.

Seven specimens are present in the collection. Five are from the Period I C while one each is from Period I B and I A.

SKTD-23: From a mid-level of Period I C. Marine. Length 81 mm, diameter 29 mm. [Pl. CV, 6]

Family- Pyramidellidae

(xi) *Turbonila scalaris*

The shell is more elongated and the whorls have ribs running across them.

SKTD-181: From a mid-level of Period I C. Length 18 mm, diameter 7 mm.

Class - *Polecypeda*

Family-Unionidae

(xii) *Lamellidens marginalis*

Common freshwater mussel of India. Eight specimens are present in this collection, seven from the Period I C and one from the Period I B.

SKTD-3002: From a late level of the Period I C. Length 57 mm, width 32 mm, height 14 mm.

SKTD-1242: From a late level of Period I B. Only the right valve of an adult shell is present. It was probably used as a feeding spoon. Length 70 mm, width 32 mm, height 13 mm [Pl. CV, 2].

(xiii) *Parreysia favidens* - Only one specimen.

Fresh water form, shells are thick.

SKTD-2055: From a late level of the Period I C. Length 46 mm, width 34 mm, height 12 mm.

(xiv) *Family-Corbiculidae*

Corbicula regularis Prima-Freshwater form. Only one specimen, its shell is triangular and outer surface is marked by concentric lines.

SKTD-444: From a mid-level of the Period I B. Length 22 mm, width 17 mm, height 7mm.

Class-Lemellibranchiata.

Family-Pectinidae

(xv) *Pecten varius* L.-

In this collection, there are eight examples of Arcoids,[1] with deep verticaly radiating teeth. This is a common and abundant group of tarodonts. Seven are from the Period I C and one from the Period I B. Largest one, SKTD-715 from a late level of the Period I C, is 62 mm long, 65 mm wide and 29 mm high, while the smallest one, SKTD-1985 from a late level of the Period I C, is 50 mm long, 34 mm wide and 15 mm in height.

SKTD-1991: From a mid-level of the Period I C. It is with three rings [Pl. CV, 1].

SKTD-837: From a mid-level of the Period I B it has a hole in the body and shows that it might have been used as an amulet [Pl. CV, 3].

In Arcoids, there is a general tendency for the number of teeth to increase as the size of individual teeth decreases.

SKTD-1940: From a late level of the Period I C is a *streblochondria* with deep horizontal and shallow vertical grooves, all radiating from the apex [Pl. CV, 4].

C. PLANT REMAINS

Introduction

Three charred lumps dated 1660 B.C. (TF-1307), discovered from an earthen pot from Locus XA4 (Odl, Layer 5, depth 1.6 metres) in Period I C at Surkotada, were sent to us for investigation by Shri J.P. Joshi.

The examination under the stereo-microscope revealed that each lump was made up of carbonised seeds, which were held together by the tar produced during charring. Pricking the lumps carefully with a needle released the seeds in them. Of the three lumps, the two larger ones yielded 574 seeds and the smaller one 166 seeds. In all there were 740 seeds. Owing to excessive carbonisation (charring), a varying extent of obliteration of distinctive characters of the seeds has been observed.

The seeds are all small in size, under 2 mm rarely 3, minute to be precise, possibly the consequence of excessive carbonisation. A close examination of the entire mterial revealed that an overwhelming majority of these seeds belonged to wild plants. Some, however, could be of cultivated plants. Prior to their identification, they were segretated into morphographical forms. Two of these categories seemed comparable with those of the

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1. W.H. Easton *Invertebrate Paleontology*, (New York, 1959), pp 341-356

small-seeded cultivated cereal plants, the millets as they are called, and these made up about 7% of the entire seeds recovered. The remaining majority comprised of seeds of wild plants such as grasses, sedges and the other species.

Identification of the overwhelming majority of the carbonised wild seeds, on account the non-availability of the modern comparative materials and the utter absence of a seed manual for Indian species, was considered highly tentative. In contrast, the work on the remains of cultivars was not that difficult for the modern comparative material of cultivars and the related wild species became readilly available. The results of their study were published elsewhere in full[1].

The same, checked and rivised in the light of the author's involvement in 1985 in the Indo-American Excavation Project on Rojdi in Saurashtra, is presented here.

Observations

The plant species identified from their seed remains are reported below under two groups— the Cultivated Plant Species and the Wild Plant Species. The words grains, nuts etc. are used for the seeds of some plant species because in botanical parlance they are thus referred to technically.

a. *Cultivated Plant Species*

The grains of cultivated plant species of *Setaria* and *Eleusine* have been recognised in the overwhelming majority of the carbonised seeds of wild plant species. Their distinctive anatomical characters as shown in Plates 1-3 made possible their recognition. Their fuller details have already been published.

Among these two cultivars identified, the Italian Foxtail Millet, *Setaria italica* (L.) P. Beauv (Pl.CVII. 1-9) is known in Gujarat as *Chano, Kang, Pardeshi Baju*. To establish identity of its carbonised grains, a detailed study of grains of ten modern species of *Setaria* was made. This exercise revealed the occurrence in the carbonised material, grains of the cultivated *Setaria italica* and also of *Seteria viridis* L., the Green Foxtail which occurs as a common weed, though not reported from Gujarat. However, the *Chano* or *Kang* is cultivated at some places in Gujarat and Kutch.[2]

The Finger Millet, *Eleusine coracana* (L.) Gaertn [Pl.CVIII. 1-7; Pl.CIX. 1-8] is the other cultivar the carbonised grains of which have been identified. Their anatomical characters were found almost indentical in both the carbonised and modern grains of *Eleusine coracana* as illustrated [Pls. CVIII & CIX.]

This crop called *Nagli, Ragi, Bavato* is cultivated in Gujarat but not in northern Gujarat and Kutch.[3]

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[1] Vishnu-Mittre and R Savithri, '*Setaria* in the Ancient Plant Economy of India', *Palaeobotanist*, Vol 25, 1978, pp 559-562, R. Savithri and Vishnu-Mittre, 'Further contributions on Proto-Historic Ragi', *ibid.*, Vol. 26, no.1, 1979, pp.10-15

[2] G Gaussen, P. Legris, F. Blasco, V M Mehar-Homji, J P. Troy and M. Viart, *Explanatory Notes on the Sheet Kathiawar*, Pondicherry 1968, K S S Rao and S.D Sabnis, The Flora of Kutch-Floristics and Phytochemistry, *Bull Bot. Soc India*, Vol. 223, nos 1-2, 1981, pp 48-81

[3] *ibid.*

b. *Wild Plant Species*

An overwhelming majority of the seeds belong to the wild plants and these have been recognised as of Grasses, Sedges, and the other plants. Those referred to as grasses are ovoid, elongated to oblong and grooved measuring 0.70-2.50 x 35-1.25mm in contrast to the biconvex, elongate triangular nuts measuring 1-1.90 x 1-1.75 mm. The seeds referred to as the other species are either subreniform or obtusely tetragonous.

The following plant species have been recognised. The species recoognised earlier are also mentioned against each.

I. Grasses:

1. *Andropogon* sp.

2. *Arundinella metzii* Hochst. ex Mig [Pl.CX. 4]. Earlier Unidentified.

3. *Arundinella pumpilla* (Hochst.) Steud [Pl.CXI, 6]. Earlier unidentified.

4. *Brachiaria reptans* (L.) Gard. & C.E. Hubb. Earlier Brachiaria sp.

5. *Dichanthium* sp.

6. *Eragrostis* sp.

7. *Digitaria* sp. possibly *D.biformis Wild., D.pennata* (Hochst.) Cokke, or *D. Stricta* Roth ex R. & S.

8. *Echinochloa stagnina* (Retz.) P. Beauv [Pl. CXI. 2]. Earlier identified as *Poa* sp.

9. *Setaria Viridis* L.

10. Panicum sp. possibly *P. antidotale* Retz. or *P. Psilopodium* Trin.

11. *Phvrgmites Karka* (Retz.) Trin. ex steud.

II. Sedges:

1. *Carex* spp [Pl.CX. 7,8].

Earlier identifed as *Carex* spp. The seeds in Fig. 7 may belong to a cucurbit.

2. *Cyperus rotundus* L. sub sp. *tuberosus* Rottb [Pl. CX. 1]. Earlier identified as *Polygonum* sp.

3. *Cyperus micheleanus* (1) Link [Pl. CX. 2]. Earlier identified as *Dichostylis.*

4. *Eriophorum* sp.

5. *Fimbristylis ovata* Kern [Pl. CX. 9].

Earlier un identified.

6. *Scirpus Lateriflorus* Cmel [Pl. CX. 3].

Earlier identified as *Scirpus supinus L.*

7. *Scirpus litoralis* Schrad [Pl. CX. 6].

   Earlier identified as *Carex* sp.

III. The Other Wild Plants:

1. *Amaranthus* sp.

2. *Atriplex* spp. probably *A. griffithii* Moq. var. *stocksii* Boiss.

3. *Euphorbia* spp. possibly the species *elegans* Spr., *granulata* Forsk., *orbiculata* H.B. & K., *parviflora* L., *prostrata* Ait and or *pycnostegia* Boiss [Pl.CXI. 12].

4. *Heliotropium bacciferum* Forsk [Pl.CXI. 1,10]. Earlier unidentified.

5. *Mazus pumillus* Steenis [Pl. CXI, 9].

   Earlier unidentified.

6. *Stellaria* sp. [Pl. CXI, 3].

   Earlier identified as Cheno-amaranthus or *Stellaria* sp.

7. *Zaleya decandra* L. [Pl. CX, 5].

   Earlier identified as *Portulaca sp.*

8. *Trifolium repens* L. [Pl. CXI, 11].

CONCLUSION

The discovery of an overwhelming majority of seeds of several plant species including grasses, sedges and the others with a sprinkling of grains of two cultivars in a pot is highly suggestive of two facts that the Harappans during the occupation of Surkotada had practised farming as well as gathering of seeds of wild plants. The evidence of cultivars is limited to two millets only namely *Setaria italica* and *Eleusine Coracana.* There is so far no evidence of other cereals and none at all of the pulses, oil-yielding plants and fibre-plants. These two crops are suited to tracts with low rainfall between 500-700 mm[1]. The average annual precipitation in Kutch today is 350 mm with a long dry season of 8-10 months. Were the late-Harappan times in Kutch moister than today? Whereas the Italian Millet grows on very light, ashy and black cotton soils, it is a rainfed as well as an irrigation crop. Though the Ragi stands salinity better than any other crop, irrigation is essential for this crop too. Manuring is essential when grown under irrigation. However, besides casting the seeds, hoeing or working the crop with a harrow is also done. There is no factual evidence of hoe or harrow at the site. They may have cultivated these crops without ploughing, manuring or providing additional water. There is no evidence of that either. That they did not cultivate at all, though difficult to believe in view of the Harappan context, but had an access to the produce from elsewhere, though without

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[1] Vishnu-Mittre and R. Savithri, 'Food Economy of the Harappans' in *Harappan Civilisation* (ed.) G.L. Possehl (New Delhi, 1982), pp. 205-221.

evidence, can not be overlooked in view of the overwhelming majority of seeds of wild plants collected deliberately. The situation indeed is enigmatic.

Were the Harappans food gatherers also throughout their existence at the site for nearly 600 years (2300 B.C. - 1660 B.C.)?. Or else the white painted Black-and-Red ware people, resembling the Ahar Culture people, who invaded Surkotada, pushed the Harappans to the back ground and caused wide-spread conflagaration of the site, were the food gatherers? There is no evidence to prove either.

What was the-object of collecting such a wide variety of wild seeds remains ill understood We can only conjecture that they were collected either to prepare gruell or medicines or were gathered to feed cage birds. The answers to these questions will remain only speculative untill more evidence has been obtained.

The wild plant species are good indicators of the prevalence of environment. It will not be out of place to repeat here the inference of moister climate from the identification of the cultivated species in the carbonised remains at this site. Interestingly, many of the wild plant species identified do not occur in Kutch but are distributed in the southern and central Gujarat where climate is moister than in Kutch. Confirmation of the identification with the help of seed Atlas under preparations would indeed be eagerly awaited to know the actual situation in this regard.

12. EXPLORATION IN KUTCH

A. THE APPROACH

It will not be out of place here to mention that in all the three expeditions, the district of Kutch was approached from the Satalpur region after crossing the Little Rann of Kutch. The approach from this side was thought proper due to the following considerations:

1. After a through exploration of north Gujarat it gave a better perspective to understand the sites, and a movement from east-to-west was necessary for understanding the sites and their changing behaviour.

2. The earlier explorers have gone through the Little Rann of Kutch from the Dhrangadhara side and therefore, this route of exploration was omitted.

3. After crossing the Rann near Satalpur, northern Kutch was approached in the earlier part of the exploration and southern Kutch later.

4. A close study of the toposheets and geological sheets provided the necessary material for locating the pre-historic sites and other sites also.

5. At various places where it was suspected that ancient routes might have passed through, the present people who still move with their caravans, as well as the people who used to go with caravans to the region of Sind before the partition of the country, were interrogated. After getting the necessary information these routes were followed to find out the remains of the earlier civilisation.

B. SUMMARY OF THE RESULTS OF EXPLORATION

In the present exploration, sites of Early, Middle and Late Stone Ages in Kutch have been found and now included in the pre-historic Map of India. As with other parts of India, all the three stages of early man are available in Kutch also. This shows the extent of the activity of Stone Age man right from Kutch to Dharwar in the coastal area. This also brings out the fact that this region was favourable for habitation even from the pre-historic times.

In the microlith industry it has been seen that sites have mostly yielded, in order of frequency, mainly parallel-sided baldes, scrapers, burins, points, lunates, borers, and awls— blades and flakes predominating in the assemblage. A few sites have shown an affiliation with Middle Stone Age tools but in the absence of any stratigraphical evidence not much can be said.

The present exploration of seventeen Harappan sites leads to the following postulations:

1. The extensive size of some of the mounds in Kutch suggests a permanent settlement of the Harappans for a considerable period.

2. It is reasonable to infer that the entire Kutch came under the influence of the Harappan culture at a fairly early stage of its expansion and that the Harappans moved to Kutch by land routes.

3. The features of stone fortification at many sites and twin mounds at Kotadi reveal the characteristic element of the mature Harappans. The absence of this element in Saurashtra may perhaps be due to the paucity of the stone material and remoteness of the area from Saurashtra. As such, its presence in Kutch is significant, indicating greater closeness to the cultural traits of Harappan culture of the Sind region.

4. The occurrence of the sherds of the Reserved slip ware along with Harappan ware on a number of sites in Kutch pushes back the antiquity of Harappa Culture in Kutch and gives interesting clues of a relationship between Ur, Bark and Mohenjodaro on the one hand and Lothal on the other.

5. White painted black-and-red ware is available at Surkotada and black-and- red ware from a few other sites.

6. The tradition of the short blade industry on chalcedony is available from all the Harappan sites indicating the existence of a later phase besides the mature one.

7. A few sherds with thick bands and some shapes resembling pre-Harappan period of Kalibangan from Kotadi give an the inkling of an earlier contact or substratum.

8. The red slipped cream ware, available from many Harappan sites in Kutch, tends to suggest a devolution in some parts of Kutch as in Saurashtra. Desalpar sequence attests to this aspect in that region of Kutch.

9. No lustrous red ware was obtained from any of the sites in Kutch but a few shapes of Rangpur II B and C were recorded from some sites.

10. The find of a redware painted pottery akin to that of Rangmahal indicates the existence of an early historic period in Kutch. During the early Christian era the inscriptions of the Kshtrapas are already well-known.

11. A few cairns at Saya-khan-ni Wandh are also interesting.

A detailed discussion of the explored material has been attempted in the following pages in chronological order from Stone Age to Historical Period.

C. STONE AGE IN KUTCH

(i) *Early Stone Age Sites*

Wheeler has remarked: "In India it is more than ordinarily difficult to set man of the Old Stone Age, Palaeolithic man, squarely upon his feet. That he abounded for many thousands of years is sufficiently evident from the unnumbered lumps of stone which he split and shaped and left for us in a variety of geological environments but of his physical

aspect we know nothing".[1] Though this position remains unchanged, considerable progress has been made since then to understand him through the 'unnumbered lumps of stone' in their geological setting, distribution, technique and typology. Thanks to the arduous fieldwork carried out by Sankalia and his team and a band of enthusiastic pre-historians of the Archaeological Survey of India and also a few other learned institutions, now we have considerable idea of the Pre-historic man and the areas where he lived, roamed and gathered his food and made his tools from pebbles from the various neighbouring rivers or hard rock whichever was easily available locally during the Middle Pleistocene period of the geological time scale. Consequently, the pre-historic researchers have shown that, practically from Kutch to NEFA and from Kashmir to Tamil Nadu, in the entire Indian subcontinent the Pre-historic man abounded. Regular explorations every year are filling up the gaps in areas where the habitat of the Early Stone Age man had not been reported earlier.

In the search for the Stone Age man, explorations were carried out in Kutch in 1967 by Sankalia and the present author independently, and the results were most rewarding. Sankalia has observed that one witnesses the same phenomena of river formation and erosion as elsewhere in peninsular India and the most important factor is that the earliest trace of man in the form of his stone tools are found in the pebbly or bouldery river deposits.[2] The observations of Sankalia etc. that during the Pleistocene there were a number of land and sea level changes as indicated by the raised beach deposits, fossil-soil deposits, in miliolite limestone and the present rejuvenated nature of the streams of Kutch is important. The marginal zones like Rann, little Rann, etc. might have changed their physical characteristics many times during the Pleistocene, and changes must have influenced cultural movements and contacts of early man in north-western Gujarat. Sankalia would like to place the Stone Age industry of Saurashtra peninsula to the later half of the Pleistocene period and perhaps it may be correct to apply the same time scale also to Kutch.[3]

Sankalia located an early Stone Age site in the Jurrasic rock region, on the left bank of Angia, 50 km west-northwest of Bhuj. The exposed section, 2-5 m in height, is composed almost of locally derived slope materials. The subangular to angular blocks and chunks of dolerite and subrounded pebbles of sandstone were found to be laid in a sandy ferruginous matrix of calcarious cement. This gravel imperceptibly grades into calcareous red brown silt. A few flakes, one cleaver and a few core like chunks, were recovered *in situ* from the gravel. The tools are made of basalt and dolerite which are locally available. The other sites are Bhojadi, Lokhand and Deosar, from where handaxes, cleavers, choppers and scrapers were collected. The present author has also examined the site reported above at Sukhi and agrees with the section which is implementifarious and thus stratigraphically very important from the point of view of the exact position of the tools in this area.

[1] R.E.M. Wheeler, *Early India and Pakistan,* (London-1959), p. 345; H.D. Sankalia, *Pre-History of India,* (Delhi, 1977); Bridget Allchin, 'The Indian Stone Age Sequence', *Journal of the Royal Anthropological Institute,* Vol. 95, Part 2, 1963, pp. 210-233.

[2] Sankalia, *op.cit.,* JGRS, 1968, pp.233-34

[3] *I.A.R.*, 1967-68, p. 18.

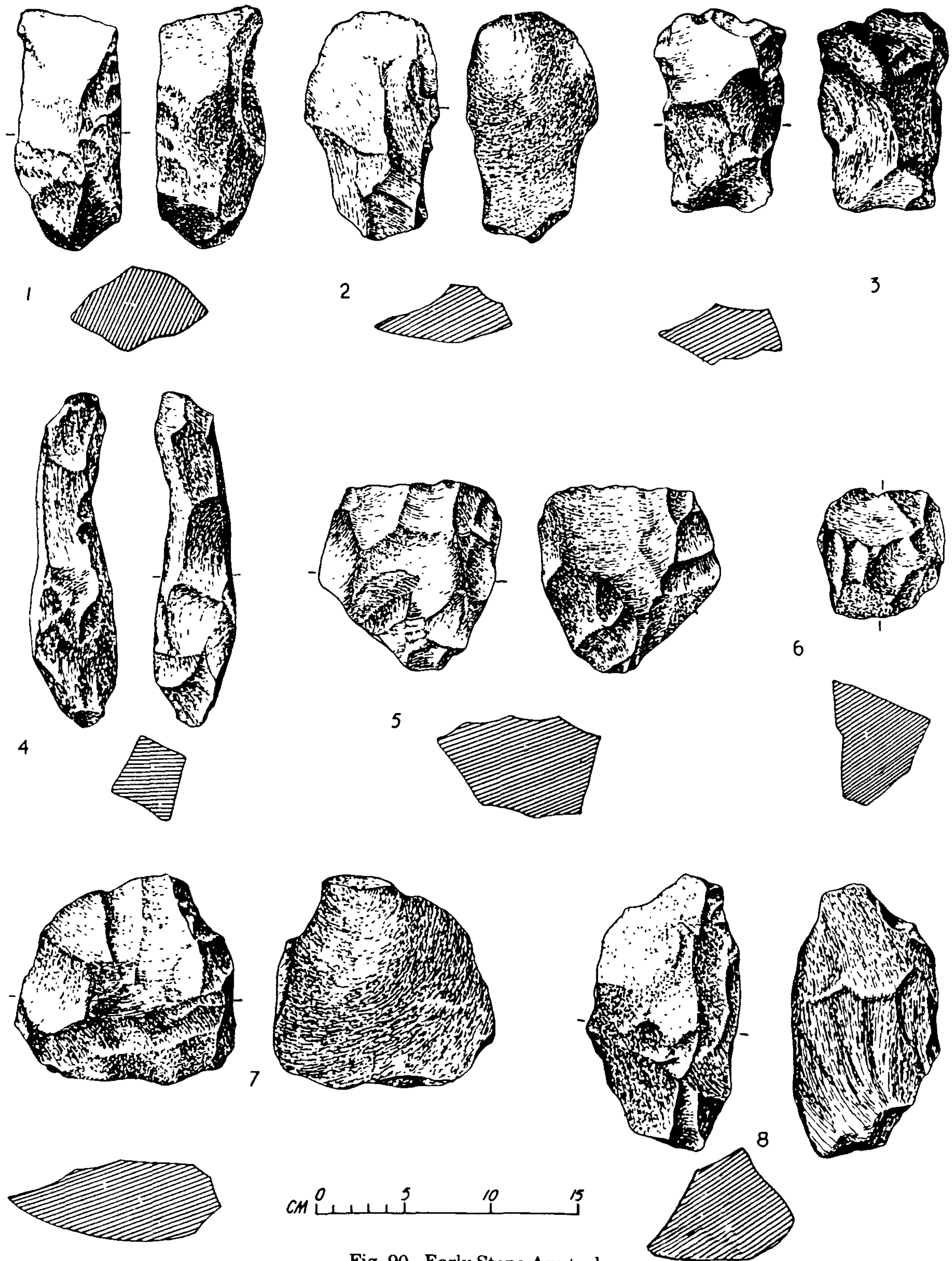


Fig. 90. Early Stone Age tools.

Comparatively, a few pleistocene exposures are available in the peninsula of Kutch which are situated in the Nakhatrana and Lakhpat Talukas and in a narrow belt running from Naliya to Mundra and then turning slightly north. Discovery of open air sites at Pakhara Dungar, near the village Virani to the right of the Budhiali *nala*, in Nakhatrana Taluka yielding handaxe, cleaver complex are remarkable for throwing considerable light on the Prehistoric man who lived in this part of the country. The availability of Early Stone Age tools is significant as this is the farthest point on this side of the Indian Union offering links with other sites in the subcontinent.

(a) *Early Stone Age Tools*

Fig. 90; Pl. CXII

1. Large flakes retaining a portion of the original cortex forming the butt-end; a sharp cutting edge is produced by flaking which is occasionally battered by use; length 13 cm, width 5.8 cm, thickness 7.5 cm.

2. Scraper with a prominent primary flaking on the humped dorsal side and a crude flattish ventral side with a butt end. Length 12 cm, width 7 cm, thickness 3 cm.

3. Cleaver with sharp straight edges is produced by taking flakes from both sides and a 'U'-shaped butt end. Length 10 cm, width 7 cm, thickness 3 cm.

4. Double pointed handaxe, fully flaked to produce edges and ends. Length 18 cm, width 5 cm, thickness 4 cm.

5. Chopper on core with a prominent flaking on both edges and thick butt end. Length 10 cm, width 10 cm, thickess 4 cm.

6. Core with prominent flakings and a flat butt end. Length 7 cm, width 7 cm, thickness 7 cm.

7. Chopper on a flake with prominent flaking on the dorsal side culminating in a fan-shaped sharp edge and ventral side showing a prominent bulbar scar. Length 13 cm, width 11 cm, thickness 4.5 cm.

8. Handaxe with a side flaking over the dorsal side and occasionally on the ventral side producing an edge. Tip of the point is broken. Length 15 cm, width 8 cm, thickness 6 cm.

(ii) *Middle Stone Age Sites*

A decade's careful search all over the Indo-Pakistan subcontinent has brought to light a large number of tools from sites which fill in the gap between the Early Stone Age and Late Stone Age cultures, and are hence rightly designated as the artifacts of the Middle Stone Age. The artifacts of the Middle Stone Age have been found in Maharashtra, Mysore, Madras, Orissa, Rajasthan, Gujarat, Uttar Pradesh, Madhya Pradesh and Punjab. The type tools of the Middle Stone Age consist of scrapers of various types on simple flakes or those with a prepared platform, or from prepared cores or from simple flat nodules; borers, points, blade-like thick flakes, choppers, small handaxes, etc. The technique

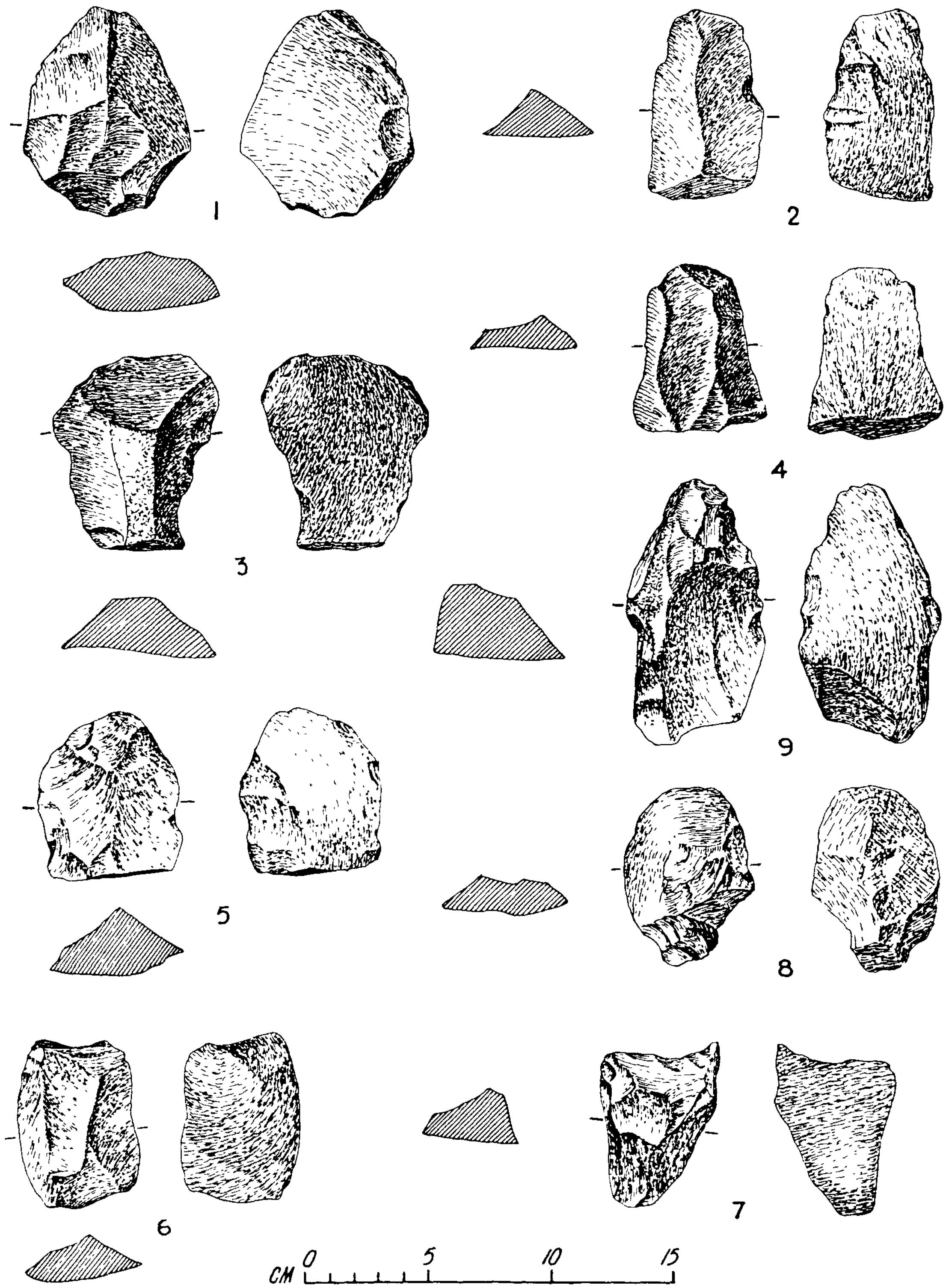


Fig. 91. Middle Stone Age tools.

involved is one of the prepared core or discoid core, and the flakes have been removed by a stone hammer. True levellosian flakes are there but very few. Generally, chert, chalcedony, jasper and agate have been used as the raw material for these tools. The points and arrowheads were probably hafted and used, while scrapers were used for dressing the skins and barks. One factor is certain that, with the advent of the Middle Stone Age, man had slowly left the big tools, i.e., choppers and hand axes, and also the big game and entered into the stage of projectiles. With these tools he could easily hunt and keep himself safe also and thus, it is definitely an advancement of no mean nature. Stratigraphically, in the Narmada where, on the top of the second gravel, Acheulian and Middle Stone Age flakes occur and again in the Godavari region where *Bos Namadicus* (Falconer) occurs in the gravels yielding Early and Middle Stone Age tools indicate a gradual change. In many parts a continuity of the Early Stone Age material is seen in a much longer time span and thus provides a link and a continuity. But it cannot be denied that though the material continued, the tool type of the Early Stone Age vanished and new types came into vogue, of course, due to the easy availability of other material and advancement. The proposition of Khatri that the Middle Stone Age represents a new wave of culture is not beyond cavil. Stratigraphically, particulars of the evidence of the Narmada and Godavari have been pointed out above. In an evolution where the climate, flora and fauna have been a prime factor, it is not at all necessary to envisage the coming of a new people. The necessities can also determine and bring out a change due to human endeavour in any evolutionary cycle.[1]

The area of Kutch gives good evidence to show that the fine grained quartizite of different kinds continued to be employed during the Middle Stone Age along with chert, agate, chalcedony, etc. The tools found by Soundararajan during his explorations[2] in Kutch and the present author aptly demonstrate this fact. The Middle Stone Age tools have been picked up only from the upper gravels containing quartzite flakes (the lower one being very hard 'doleritic shingle formations and non-implementifarious') and the tool types included flakes, blades, scrapers and cores.

A continuity between the Early and the Middle Stone Age assemblages has again been confirmed during the present exploration. The connecting link has been a series of tools made in quartzite found at Pakhara Dungar where Early Stone Age tools have also been found. The Middle Stone Age tools were picked up near the Budhiali *nala* from which the incline to Pakhra Dungar beings. Again, at milestone 39/3 on Bhuj-Lakhpat Road also a similar assemblage has been found. On close examination of these tools, one is apt to put them well within the technique of prepared core that had developed, but the use of quartizite continued (Group A). The tools also have a limited range in typology, i.e., either scrapers or long flakes. Well-developed forms of Middle Stone Age tools have been collected from the upper terraces containing loose gravel and silt of Kankavati River near Vinzhan village, Sherdi and Trimbav near village Kotada. The material of these tools is chert,

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[1] Bridget Allchin, 'Environment, Time and Technology: The flake tradition and the blade and burin tradition in western India' in Agrawal and Ghosh (ed.), *op.cit.*, 1973, pp 18-22.

[2] *I.A.R.* 1963-64, p.10.

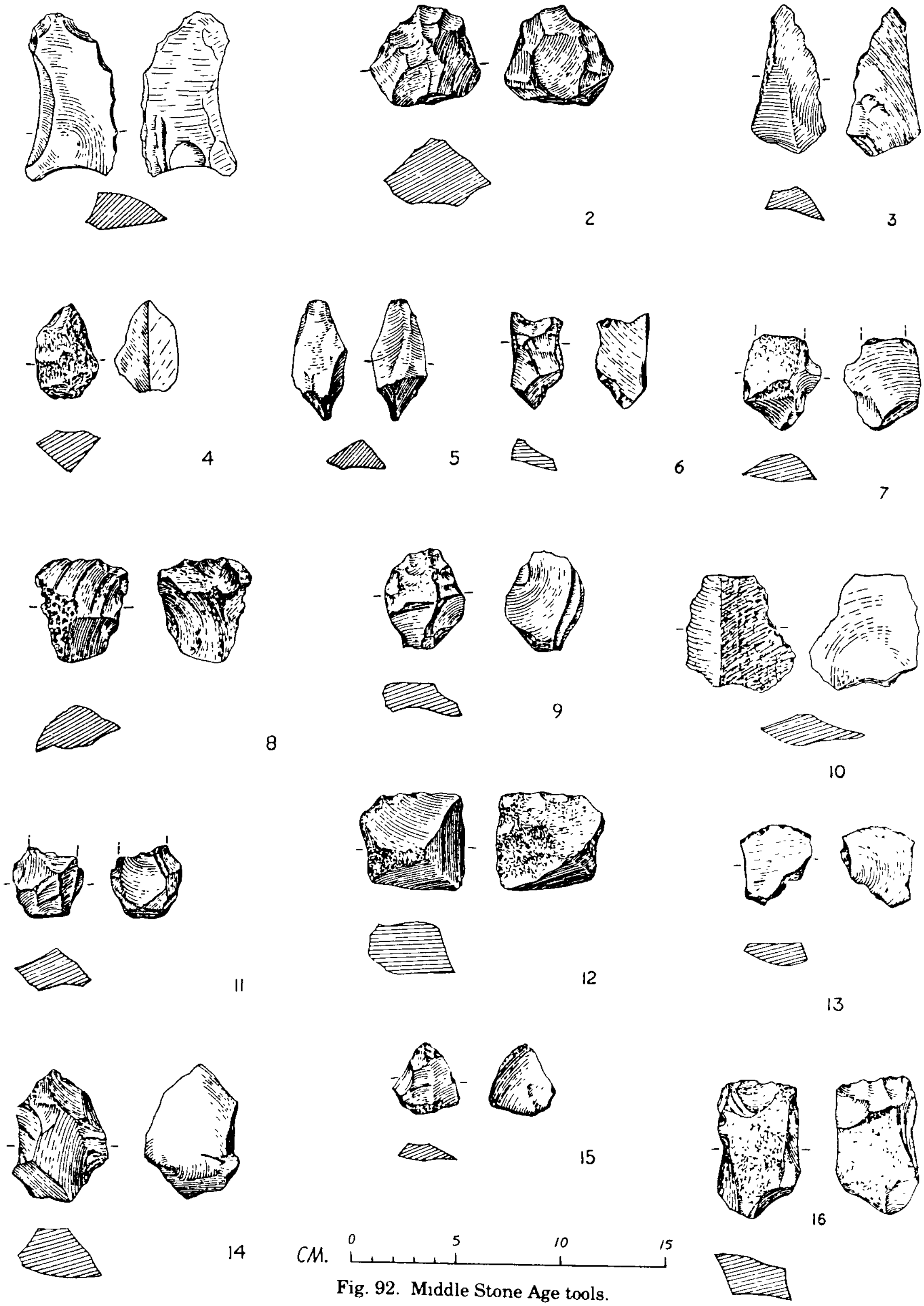


Fig. 92. Middle Stone Age tools.

chalcedony, jasper and the shapes include scrapers, side scraper, round scrapers, scraper-cum-points, borers, hollow scrapers and points. Keeping the above facts in view, the selected tools have been described as below:

Group 'A' — all are on quartzite; from Pakhra Dungar, Virani

Fig. 91; Pl CXIII

1. Leaf shaped flake, slightly retouched on one side of the edge. Size 8.5 x 7 x 3 cm.

2. A 'U' shaped flake taken out of a prepared core having a faceted platform and edge retouched all-round. Size 8 x 4.5 x 2.5 cm.

3. Leaf shaped flake with a prominent bulb and edge retouched. Size 8 x6.5 x 2.5 cm.

4. Flake taken out of a prepared core having a faceted platform with a marginal retouch. Size 6.5 x 5.5 x 2 cm.

5. A side scraper on flattish flake, provided with a battered back for holding. Size 6.5 x 5.5 x 2.5 cm.

6. A long flake having a faceted platform with a prominent cutting edge and retouched sides. Size 6.5 x 5 x 2 cm.

7. A long flake having a faceted platform taken out of a prepared core with a retouch on one side. Size 7 x 5 x 2.5 cm.

8. A side scraper on a rectangular flattish flake battered on its back for holding; side retouched. Size 10.5 x 6 x 3.5 cm.

9. Side scraper on an irregular flake having a battered back for holding; side retouched. Size 10.5 x 6 x 3.5 cm.

Group 'B'

Fig. 92; Pl.CXIV

1. Chert side-scraper on a flattish levalloisian flake with faceted platform and a prominent bulb of percussion. Edge well retouched. Size 7.5 x 4.5 x 1.5 cm. From Trimbav.

2. Quartzite point-cum-side scraper on a flake with a prominent mid ridge, edge retouched. Size 6 x 5 x 1 cm. From Trimbav.

3. Quartzite point-cum-side scraper, triangular in shape on a flake with a faceted platform with the edge retouched. Size 6.5 x 3 x 1.5 cm. From Trimbav.

4. Chert borer-cum-scraper on a flattish round levalloisian flake with a faceted platform. The main concavities up to the tip of the projection are retouched. Size 4 x 3 x 1.5 cm. From milestone 39/3 Bhuj-Lakhpat Road.

5. Banded Agate roughly ovaloid point on a flake, uneven dorsal side and a flat ventral side and roughly convex edge with a retouch. Size 5.5 x 5 x 1.5 cm. From Serdi.

6. Chert side scraper on a levalloisian flake with a faceted platform, slightly inclined and side edge retouched. Size 4 x 3 x 1.5 cm. From Trimbav.

7. Chert blade or side scraper on flat flake with a faceted platform and a diffused bulb of percussion. The edge finely retouched. Size 4.5 x 3.5 x 1.5 cm. From Gadh.

8. Chalcedony end and side scraper on flake having a prominent bulb; convex edge finely retouched. Size 4.7 x 4 x 2 cm. From Serdi.

9. Chert point, triangular flake, edges and tip retouched forming a regular and parallel-sided flake scar. Tip is thin and sharp. Size 4.5 x 3.5 x 3.5 cm. From Gadh.

10. Chert convex edged scraper on a flat flake, retouched. Size 6 x 4 x 2 cm. From Serdi.

11. Point on triangular flake with prominent ridges; edges retouched. Size 6 x 4.5 x 2 cm. From Trimbav.

12. Chert hollow or concave scraper on a flat flake with marginal retouch. Size 4.5 x 4.5 x 2 cm. From Trimbav.

13. Chert side-and-end scraper on a flattish flake; fan shaped convex edge well retouched. Two large flakes removed from either side probably to facilitate holding or hafting. Size 3.5 x 3.5 x 1.5 cm. From Trimbav.

14. Chert point on a flake having a slightly humped dorsal side with an irregular flake or scar and mid-ridge over the ventral side produced due to steep flaking. Size 4 x 3.5 x 1.6 cm. From Kankavati near the village Virzhan.

15. Greenish Quartz end scraper on a flake; fan-shaped convex edge, flaking and retouching over the blunted edge and thick butt end. Size 5 x 5 x 3 cm. From milestone 39/9 Bhuj-Lakhpat Road.

16. Jasper side-and-end scraper on flake with a steep retouch on two sides to produce an edge.Size 6.5 x 3.5 cm. From Serdi.

(iii) *Late Stone Age Sites*

Ecologically and technologically, Late Stone Age in India is post-pleistocene in the geological time scale and pre-neolothic in the archaeological chronology, marked by microliths used for hunting small game, and food gathering. A very large number of sites yielding microliths have been found in the entire Indo-Pak subcontinent. The microlith-using men occupied open rocky areas, sandy areas, coastal areas, caves and river banks. The microliths consist of blades, flakes, borers, arrowheads, etc. The microliths are geometric or non-geometric. Mishra[1] has given a general table of the distribution of microlithic tool types and raw material which is very useful in understanding a general

[1] M.S Mate and V.N. Mishra, *Indian Pre-history: 1964*, (Poona 1965), pp. 57-85.

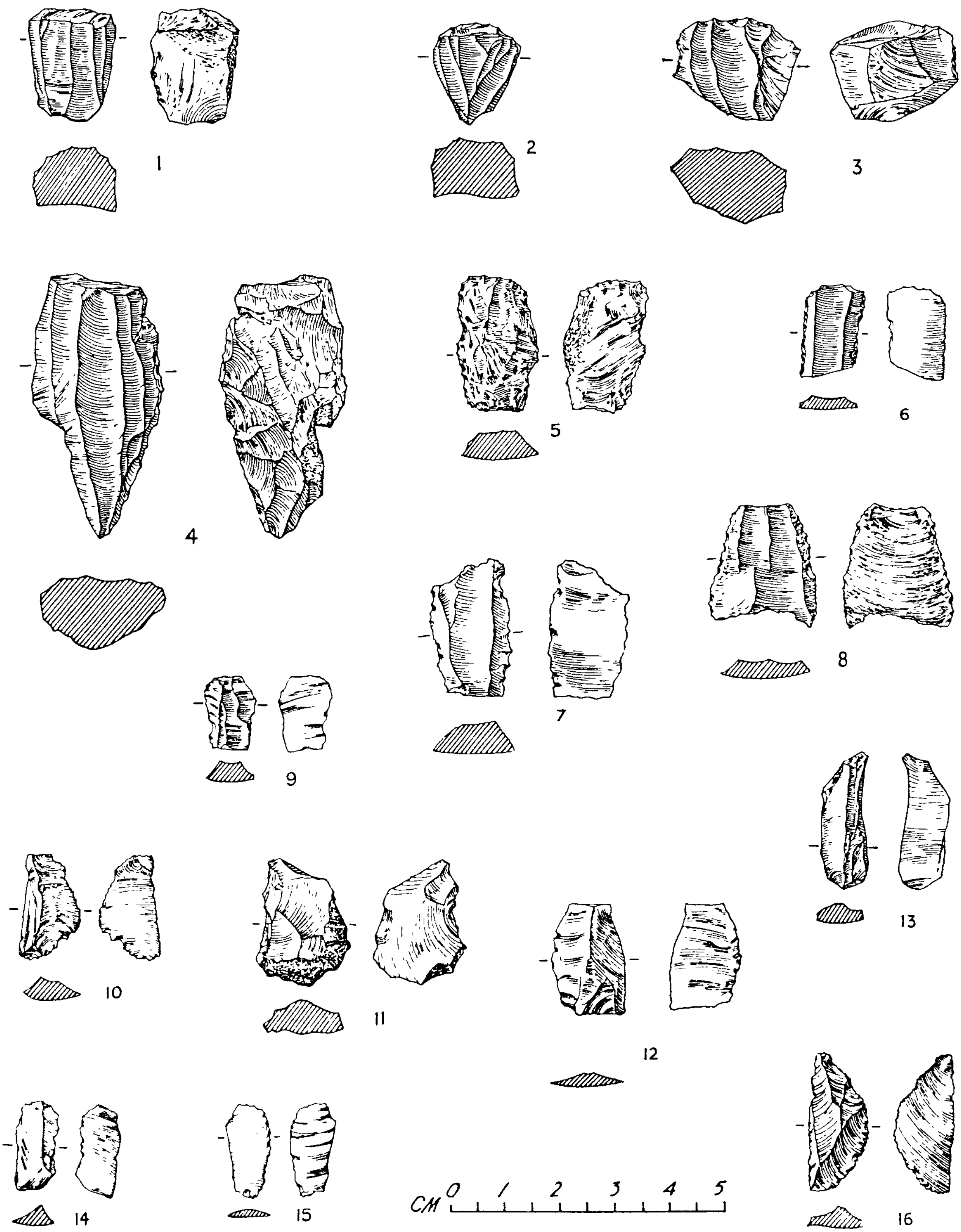


Fig. 93 Late Stone Age tools.

picture of the Late Stone Age in India. There are quite a few sites which have yielded microliths along with pottery. While the microlithic industry of Adamgarh is datable to 7270-130 B.C., the Teri microlithic culture dates to 4000 B.C. on the basis of its sea level, Birbhanpur[1] also to a similar date and Langhnaj dated to 25000 B.C. on C-14 determination. Thus, the antiquity of microlithic culture in Gujarat, on the basis of Langhnaj can be pushed back to 25000 B.C. and the same can probably be applicable also to Kutch.[2]

It was Gordon who had first reported a few microlithic sites in Kutch. Later on Soundararajan and Sankalia have reported sites within the village limits of Ratadia and Anjar respectively. The author during the course of his exploration at Kutch found nine sites yielding microliths.

These nine Late Stone Age sites represent nongeometric microliths which have been located in Kutch in the present exploration. The sites are at Makaragadh, Gamania-ni-Timbi-II, Serdi, Sayakhan-ni-Wandh, Ankodia, Trimbav, Gadh, Kankavati, milestone 39/3 on Dhrud Bhuj-Lakhpat road. Out of these microlithic sites, Series II have been also found at Serdi, Trimbav and Kankavati.

Mostly, the tools are made on chert, chalcedony, jasper and quartz. A general review of the entire assemblage from the above sites indicated that the industry consists essentially of blades; however, points and scrapers and a few borers, arrowheads, lunates and burins have also been found, thus, indicating a typical Late Stone Age industry which was flourishing in Kutch.

Illustrated tool types are described below:

Fig. 93; Pl. CXV

1. Chalcedony fluted core; flakes are taken out from one side; bulb missing. Size 2. x 1.4 x 0.8 cm. From Gamaia-ni-Timbi-II.

2. Chert fluted core; flakes are taken out from one side. Size 1.8 x 1.5 x 1 cm. From Makaragadh.

3. Chalcedony core; flakes taken from one side in transverse fashion. Size 1.8 x 2.2 x 1.4 cm. From Saya-Khan-ni-Wandh.

4. Chalcedony fluted core; vertical ridges on one side and a transverse scar on other side; converging sides retouched and made into a point. Size 4.6 x 2.3 x 1.5 cm. From Serdi.

5. Crystal Quartz parallel sided blade, trapezoidal in section. Both the sides retouched. Size 2.5 x 1.5 x 0.7 cm. From Saya-Khan-ni-Wandh.

6. Chalcedony parallel sided blade, trapezoidal in section. Lateral margins are retouched. Size 1.5 x 1 x 0.2 cm. From Trimbav.

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[1] B.B. Lal, 'Birbhanpur, a Microlithic site in the Damodar Valley, West Bengal', *Ancient India*, No.14, 1958, pp. 34-37.

[2] Sankalia, *op.cit.*, 1968, p. 2; Gordon, *Man*, 1938, No 19, pp. 21-24

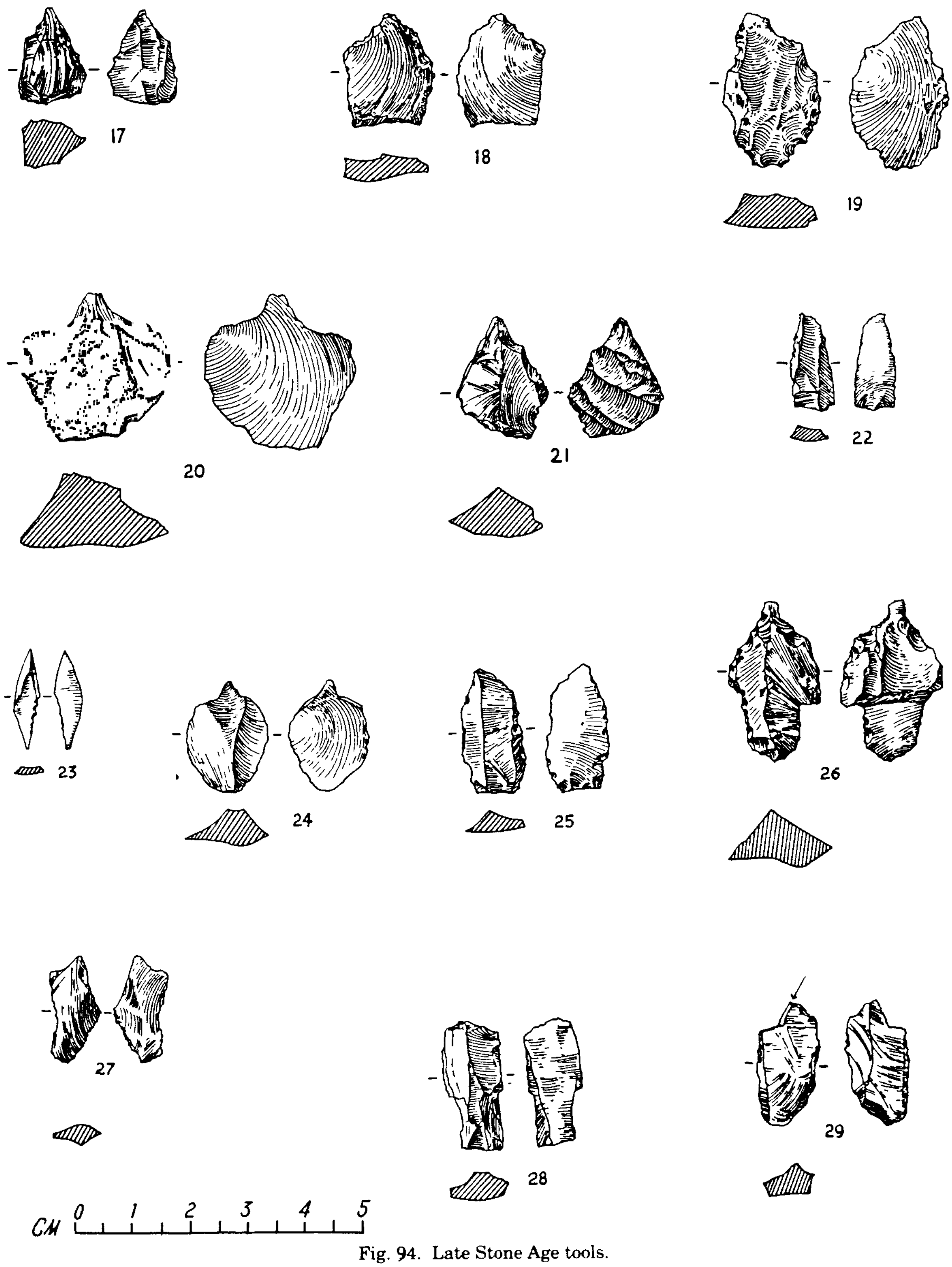


Fig. 94. Late Stone Age tools.

7. Chalcedony parallel sided blade, trapezoidal in section, working edge blunted due to use. Size 1.2 x 0.8 x 0.2 cm. From Ankodia.

8. Chert parallel sided blade, trapezoidal in section, retouched on both sides. Size 2.5 x 1.5 x 0.5 cm. From Gadh.

9. Chalcedony parallel sided blade retaining a portion of the bulb. Both the edges have primary flaking without retouch. Size 2 x 1.8 x 0.2 cm. From Saya-Khan-ni-Wandh.

10. Chalcedony lunate, arc blunted, chord has been produced by a steep retouch. Size 1.9 x 1.1 x 0.2 cm. From Makaragadh.

11. Chalcedony lunate arc blunted due to use. Size 2.5 x 1 x 0.3 cm. From Serdi.

12. Chalcedony parallel-sided blade retouched on one side. Size 1.6 x 0.7 x 0.4 cm. From Gamania-ni-Timbi-II.

13. Chert blade, blunted on one side with a bulbar scar at the back. Size 2.1 x 2 x 0.3 cm. From Makaragadh.

14. Chalcedony flake with a bulb at the back. Size 1.6 x 0.8 x 1 cm. From Makaragadh.

15. Chert penknife blade, retouched on one side, tip broken. Size 1.6 x 0.8 x 0.3 cm. From Serdi.

16. Chalcedony penknife blade, without retouch. Size 2.5 x 0.8 x 0.3 cm. From Makaragadh.

Fig. 94; Pl.CXVI

17. Chert burin having a steep transverse edge opposed to a deep vertical spall. Size 1.6 x 1.2 x 0.8 cm. From Makaragadh.

18. Chalcedony patinated point having both shoulders retouched and ending into a sharp medial ridge point. Size 2 x 1.7 x 0.4 cm. From Serdi.

19. Chalcedony leaf shaped point with retouched edges to produce the shape and an unfinished end for hafting. Size 2.8 x 1.9 x 0.6 cm. From Gamania-ni-Timbi.

20. Chalcedony awl, having a deep flaking to produce a shoulder ending into a sharp working point. Size 2 x 1.5 x 0.4 cm. From Gada.

21. Chert borer having a deep flaking to produce shoulder ending in a medial point. Size 2.5 x 2.4 x 1.2 cm. From Makaragadh.

22. Chalcedony borer with a pointed tip produced by trimming on one side and a medial ridge. Size 2.2 x 1.6 x 0.9 cm. From Serdi.

23. Greenish Jasper borer, working point produced by steep flaking on one side. Size 2.3 x 1.6 x 0.9 cm. From Gamania-ni-Timbi.

24. White Chalcedony point on flake retouched on one side and having a notch. Size 2 x 1 x 0.3 cm. From Serdi.

25. Chalcedony arrowhead, having two sides very well retouched, producing a sharp point, and a shoulder produced by notching on both sides for hafting. Size 2.8 x 1.9 x 1.1 cm. From Kankavati, near village Vinzhan.

26. Chalcedony point, deep flaking to produce the sides making into a point. Size 1.9 x 0.8 x 0.3 cm. From Gamania-ni-Timbi.

27. Chert point, both sides ending into a pronounced medial working point which is retouched. Size 1.5 x 0.5 x 0.2 cm. From Saya-Khan-ni-Wandh.

28. Chalcedony arrowhead, broken with a prominent medial ridge. Size 2.1 x 1 x 0.4 cm. From Gadh.

29. White Chalcedony burin, steeply retouched, transverse edge opposed to a deep vertical spall. Size 2.1 x 1.1 x 0.4 cm. From Trimbav.

D. HARAPPAN SITES IN KUTCH

In the last four decades more than two hundred Harappan sites have been found in the Indo-Pakistan subcontinent and some of them have also been scientifically excavated. From Dher Majra in the foothills of the Siwaliks in the Punjab to Malvan on the estuary of Tapti, and from Baragaon in Saharanpur district in U.P. to Sutkagendor in the Makran region in Baluchistan, is the area covered by the influence of Harappan culture, varying from its mature to degenerate phase ranging from 2300 B.C. to 1750 B.C. on the shorter chronology of Radio-Carbon dating. During the course of present explorations we have found seventeen Harappan sites. Before the material from explored sites is discussed, it will be worthwhile to consider how the Harappans reached Kutch.

The question arises as to whether the expansion took place after a catastrophe in the Indus region or was it economic pressure or due to enemy invasion? One thing is certain that the expansion took place in both time and space.

The latest evidence of C-14 datings suggest that the expansion took place not as a sequel to a catastrophe but it was natural and wave-after-wave of Harappans from their epicentres at Mohenjo-daro and Harappa came in search of new lands and trade well-within 2300 B.C. to 1750 B.C. and possibly also after that. Economic pressure and man's natural urge for expansion in new areas were the prime factors. However, fleeing after a flood or invasion cannot also be ruled out but only in a limited sense. The floods and enemy attacks cannot solely be responsible for mass movements. From time immemorial, floods have been a constant feature in so many parts of India, but people have hardly migrated en masse to safer regions for ever. Temporarily, they might have moved but they always came back and established their homes at the original place or region again. Hence, on the basis of dates available, it is primarily conceived that during the lifetime of Mohenjodaro and Harappa, the Harappans with their best traditions and even with some earlier traits had moved towards the southeast and north, which is attested to by the C-14 dates of Kalibangan, Lothal and Surkotada.

What was the mode of movement of the Harappans? In Rajasthan and Punjab, land routes and riverine routes of Indus, Sutluj and Ghaggar might have been used. Land routes were easy for migration when quite a large number of people moved, may be in

search of new lands or establishment of trade. After trading stations are fixed, the riverine route is quicker for carrying merchandize and also for keeping contact with the parent site than known land routes assuring greater security and certainty. In a larger sense, riverine routes and land routes can go together initially without much difficulty, or one can be considered complementary to the other. The problem is much easy to envisage in Punjab and Rajasthan regarding the movements of Harappans in their expansion. But what happened in the southeastern expansion of Harappans from Mohenjodaro towards Saurashtra is a very interesting problem.

It was Rao who first proclaimed that Harappans had come to Saurashtra by a sea route. He envisaged the coming of Harappans in two main streams, one during the lifetime of Mohenjodaro and Harappa by sea and establishing the first settlement at Lothal for overseas trade and, later on they established Desalpar in Kutch and Bhagatrav on the Kim estuary, and made several temporary settlements on the coastline. He says further, "the conspicuous absence of sites of the mature Harappan culture connecting the peninsula of Kutch and Kathiawad with the mainland supports the view that the Harappans did not follow a land route". Therefore Rao dismissed the theory of a land route of the Harappans straight way. This was the position in 1963. The suspicion of Raikes in 1964 that this part including Kutch was under water during the Harappan times does not stand in the light of the discovery of so many sites of mature Harappan cultures by the present author which has been discussed later at length. Some scholars would forward the reference of the *Periplus of the Erythraean Sea*, a work of 1st century A.D. and declare a sea around Kutch in northwest and northeast and hence conjecture that no Harappan migration through land could take place because of the literary evidence of 'shallow water' of a later date. Prior to 1965, this was precisely the position wherein we had accepted the coming of Harappans to Saurashtra and Kathiwad by boats and landing at Lothal and in many other parts but now it needs rethinking.

It is a well known fact that, when migrating, people prefer a land route, particularly when they go in search of new lands in the adjoining areas carrying their full equipment. It may be mentioned here that big boats of those days were not big enough to carry a large number of people with luggage. A land route was easier and they could go on establishing their settlements. The Indus culture people were no doubt a sea-faring people but to say that they had never preferred a land route is not tenable. Expansion is a process which involves so many factors which cannot be achieved just by landing a boat in a foreign land. The following factors postulate a case for migration of Harappans to Kutch by land routes and then on to Saurashtra:

(1) The Geographical position of Kutch is such that it is well placed in between Sind and Saurashtra. Kutch could be easily accessible from Allahdino, Kot Diji or Mohenjodaro which is only about 400 km from Kotara, a Harappan site in Khavada, in Kutch. Coming regularly by boat following the coastline will involve a coverage of nearly about 1300 km. Human instinct to follow a shorter route is a prime factor which cannot be denied or overlooked.

(2) At present, anybody can cross the Great or the Little Rann of Kutch from

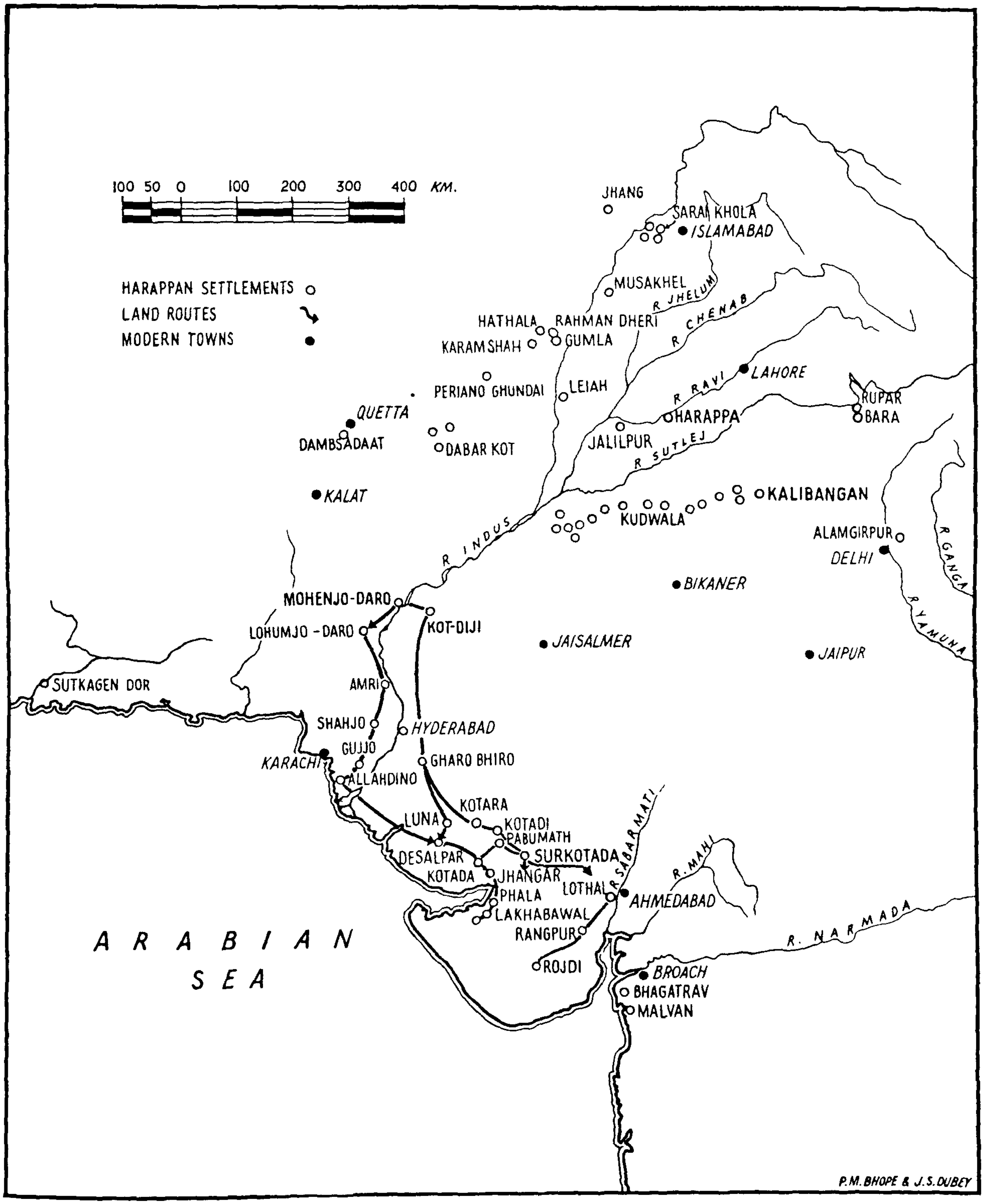


Fig. 95. Map showing Harappan migration: Land routes to Saurashtra.

January to June on foot. The *Bombay Gazetteer* clearly mentions: "even when there is a slight depth of water it does not make the Rann impassable; on the contrary, camels can move safer through water than over slippery mud". It is possible to think that the land routes were in vogue even in the second-third millennium B.C. Luna, a Harappan site discovered by Rao himself lies in the Banni area at a height of 3.5 m above sea level. Though the area around this site is now flooded during the rainy season, in ancient days this was not the condition, otherwise this habitation would not have been there, or if at all, it was there then the conditions could not be different from what we find at present. Today also the Rann between the Sind and Khavada, Khavada Khadir and Kutch, as such, is crossable at quite a few points except only during the monsoon when the area in between is flooded to a depth of 1 to 2 metres. Even if the present position is taken, then also, the area is crossable at least for six months.

(3) The Harappans also being agriculturists, it is but natural that they would have moved on to explore fertile tracts available along the stream basins. In this pursuit they could move on to explore fertile tracts available by land routes, rather than taking to the sea. Even in the present day's geographical environment of Kutch, there is formidable cultivable land and as such during the Harappan times the condition could not have been vastly different when the population was also of a smaller size.

(4) From Sind on their eastwest march, the Harappans made the first fortified establishment at Kotara near Kuran in Khavada. Here they could easily reach from the Sind crossing through Biar bet, Gainda Bet, Kuvar bet and then, travelling in the narrow valley between Kala Dungar and Gora Dungar, they could have crossed a strip of the Rann at Amarapur (about 6 kilometres), and reached Kotadi, again a big Harappan fortified establishment, and from there crossed the Rann and then reached the present Rapar Taluka where a cluster of Harappan sites is now available besides Surkotada which is another fortified Harappan settlement. The route from Sujwal, Jati, Musafir Khana in Sind and Lakhpat led to Desalpur, and the route from Rahim-ki-Bazar to Luna and then on to Desalpur were also in vogue besides many other land routes crossing through the Rann. The most popular land route preferred by the Harappans seems to be one from Gharo Bhiro (a Harappan site) in southeastern Sind,[1] Allahdino to Kotara and then on to Kotadi and to the various sites in the Rapar Taluka of Kutch via Kotadi, which had a very strong citadel to control and protect the eastward movement of the Harappans in the Kutch region.

Thus, it is plausible that the Harappans also used a land route and came to Kutch and then reached north Gujarat[2] and Saurashtra from Surkotada, after crossing the Little Rann. For trade they might also be using the sea route.

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[1] "Recently (1972) Mohammad Sharif of the Pakistan Department of Archaeology has identified a large Harappan Settlement located on the route which was followed by the people of Indus Civilization on their migration to Kutch and Saurashtra": Mughal, *op.cit.*, 1973 p.3.

[2] R.T. Parikh of M.S. University has recently discovered a Harappan site at Amasri near village Zekhada in Santalpur Taluk, District Banaskantha. The *Sunday Standard*, April, 30, 1972, p.9. Also see *I. A.R.*, 1964-65, p 11 for Vadgam, Dist., Surendranagar, another Harappan site found by J.P. Joshi of the Archaeological Survey of India, Excavation Branch, Nagpur.

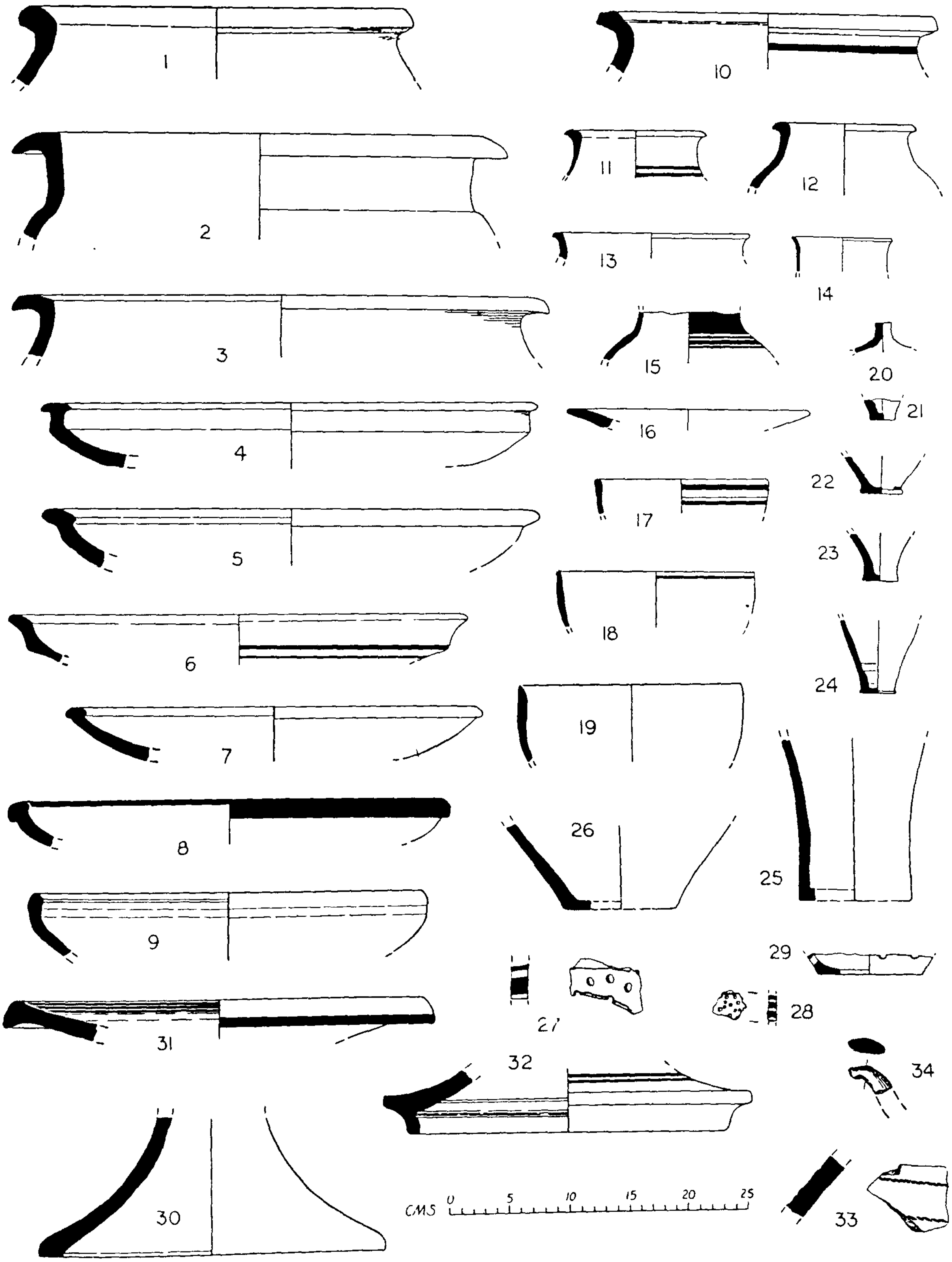


Fig. 96. Kotadi & Kotara : Pottery.

During the course of explorations the following Harappan sites have been found (Fig.95 - Map):

(1) *Surkotada*

(2) *Kerasi*

The Harappan site at Kerasi (Lat. 23^0 40' N, Long. 70^0 44 E), lies 3 km west of the village Gehi, Taluka Rapar, surrounded by cultivated lands. It is an extensively low mound covering an area of 30.48 sq. m.

The ceramic contents of this site consist of Harappan red ware, black-and-red ware of crude variety and greenish buff ware. The Harappan types in red ware are represented by sherds of a thick sturdy jar, a small jar, bowl, a dish, and a stand. Bowls in black-and-red ware are comparable to those of Rangpur. A red ware of an early historical period is also seen at the site.

The site has yielded one fragmentary wheel of terracotta cart, chert flakes and parallel sided retouched blades in chalcedony involving the crested ridge technique.

(3) *Kotadi*

The site lies (Lat. 23^0 58' N, 70^0 12' E) about 12 km south of the 24th parallel in the Khadir area (at present, Khadir is an island in the Greater Rann of Kutch). The nearest village is Dholavira which is 1 km to the south of the site. The site is spread over an area of 3/4 sq km. Here, there are twin mounds impressive by all standards. The eastern mound seems to be a citadel mound measuring about 100 x 150 m and 10 m metres high. The western mound seems to be a city mound and is very extensive and runs northsouth measuring 500 x 250 metres. It has approximately 4 to 5 m deposits. Rubble is spread all over the area. The area in between the two mounds forms a good gap. Rubble screen walls on both sides of the gap make the remains very interesting [Pls. CXVII and CXVIII].

The pottery from the area consists of a thick and thin red ware, painted black on red ware and a Reserved slip ware. The types are represented by Indus goblets, perforated jar, dish-on-stand, thick storage jars, dishes, bowls, beakers and miniature vessels so often met with in other Indus sites in Kutch. Some sherds in red ware with a thick black band on the rim are akin to the fabric A of pre-Harappan at Kalibangan and Kot Diji and thus make the study very interesting. The design repertoire consists of black designs painted over a red surface having criss-cross, net patterns, single or multihorizontal bands (thick and thin).

Fig. 96

1. Jar with a flaring rim and a bulbous body in coarse granulated red ware in thick fabric treated with thick red slip. From the surface, Kotadi.

2. Jar with a beaked projected rim, straight neck and bulbous body treated with chocolate slip in coarse red ware. From the surface, Kotadi.

3. Jar with a beaked projected rim and bulbous body in red ware. From the surface, Kotara.

4. Dish with a nail headed rim and carinated shoulder is treated with chocolate slip on red ware. From the surface, Kotadi.

5. Dish with a nail headed rim, in unslipped red ware. From the surface, Kotadi.

6. Dish with a nail headed rim treated with red slip in red ware. From the surface, Kotadi.

7. Dish with a nail headed rim treated with red slip in red ware. From the surface, Kotadi.

8. Dish with a nail headed rim treated with red slip. Rim portion is having a painted black band in red ware. From the surface, Kotadi.

9. Basin with a beaded rim and convex sides in unslipped red ware. From the surface, Kotadi.

10. Jar, thick fabric with a flaring rim and a bulbous body having a painted black band on the shoulder; in red ware. From the surface, Kotadi.

11. Jar in thin fabric with a flaring rim and high neck treated with thick red slip and two horizontal bands on the shoulder; in red ware. From the surface, Kotadi.

12. Jar in medium fabric having a flaring rim in unslipped red ware. From the surface, Kotadi.

13. Small jar with a slightly flaring rim without slip in red ware. From the surface, Kotadi.

14. Jar with an externally oblique cut rim and straight neck in thin fabric treated with fine red slip in red ware. From the surface, Kotadi.

15. Jar, bulbous body, neck portion treated with a thick black band and three horizontal bands in red ware. From the surface, Kotadi.

16. Dish with a projected rim in unslipped red ware. From the surface, Kotadi.

17. Bowl with a beaded rim and a groove at the shoulder in red ware. From the surface, Kotadi.

18. Bowl with a sharp rim and a convex body with a black band at the rim, in red ware. From the surface, Kotadi.

19. Bowl with a sharp rim and convex body in buff ware with thick red slip inside; in red ware. From the surface, Kotadi.

20. Knob of lid in red ware. From the surface, Kotadi.

21. Footed base of a goblet in unslipped red ware. From the surface, Kotadi.

22. Footed base of a goblet in unslipped red ware. From the surface, Kotadi.

23. Footed base of a goblet in unslipped red ware. From the surface, Kotadi.

24. Goblet with a footed base in unslipped red ware. From the surface Kotadi.

25. Cylindrical jar with straight sides in red ware with black slip. From the surface, Kotadi.

26. Basin in sturdy fabric with a flat base and tapering sides in red ware. From the surface, Kotadi.

27. Fragment of a perforated jar in red ware. From the surface, Kotadi.

28. Fragment of a perforated jar in red ware. From the surface, Kotadi.

29. Base of perforated jar with a circular hole at the centre. From the surface, Kotadi.

30. Base of a dish-on-stand in red ware. From the surface, Kotara.

31. Dish of a dish-on-stand with projected rim having a black horizontal band on the inner side and thick band on the exterior, in red ware. From the surface, Kotadi.

32. Lid of a huge jar with thick red slip and painted with two horizontal bands, in red ware. From the surface, Kotadi.

33. Fragment of a jar in thick red ware with an incised cord impression and nail design. From the surface, Kotadi.

34. Handmade handle of a bowl. From the surface, Kotadi.

Chert blades, blades and flakes in other semiprecious material, beads of terracotta and lapis lazuli, terracotta bangles, cartwheels, and cakes, stone balls, and a piece of copper are other important finds.

(4) *Kotara (Juni-Kuran)*

This Harappan settlement is the northernmost site lying about 27 km northwest of Khavada (Lat. 23° 57' N Long. 69° 47' E). The site, though slightly disturbed, is well fortified with rubble masonry and has a citadel area and also an adjoining fortified habitational area [Pl. CXIX-CXX].

The site has yielded dishes, thick jars, dishes-on-stand, basins, bowls, perforated jars in Harappan red ware (Fig. 94:3, 30). The other finds are terracotta bangles, beads, chert blades, and fluted cores in chalcedony.

(5) *Nenu-ni-Dhar*

This site in Khavda Taluka has yielded thick Harappan red ware and appears to be a small habitation.

(6) *Pabumath*

Next Harappan site is Pabumath (Lat. 23° 38' N, Long. 70° 31'E) which lies 1 to 2 km southwest of the village Jesda, Taluka Rapar. It is a fairly high mound having approximately a deposit of 4.57 to 5.18 meters. On the top of the mound there is a modern structure. The eastern periphery of the mound has been considerably damaged due to the recent digging of a canal which is being connected with Suvai Dam Project for irrigation purpose [Pl.CXXI].

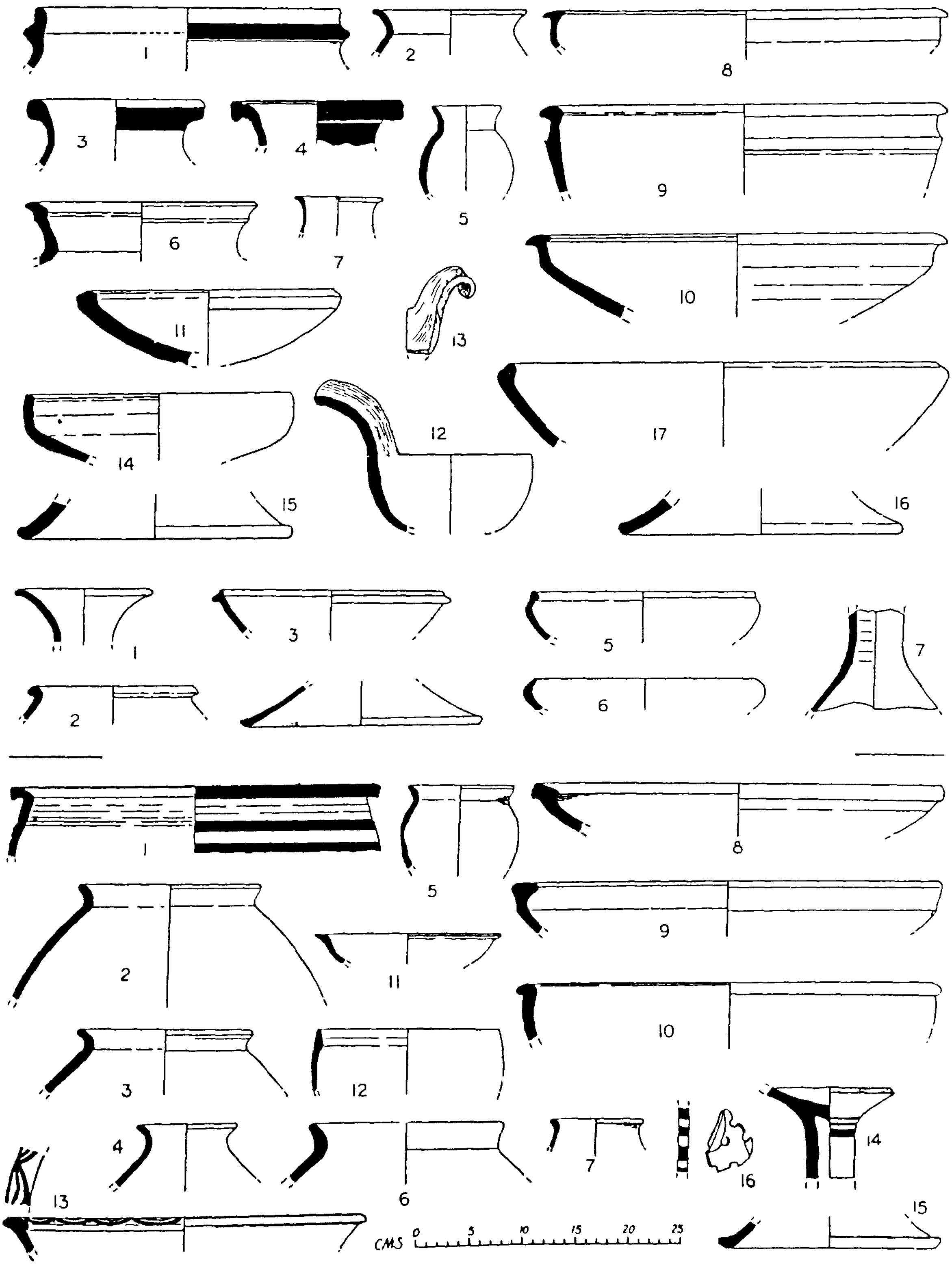


Fig. 97. Pabumath, Nen-nı-Dhar, Lakhapar, Jhangar & Kotadi : Pottery

The ceramic contents of this site consist of Harappan red ware, buff ware, black-and-red ware and Reserve slipped ware. The Harappan types in red ware are represented by jar, perforated jar, thick dish and convex sided bowls. Buff ware is represented by convex sided bowls. Black-and-red ware bowls with a convex profile are also available.

The jar, bowls and dishes are comparable with those from Rangpur II A. Certain convex sided bowls compare well with those from Rangpur II B. Designs of black on red ware consist of suspended and intersecting oblique lines in groups which are comparable to those from Rangpur II A and II B respectively (Fig.97A).

Few sherds of Reserved slip ware painted in black over light to dark grey slip with wavy and horizontal bands resemble similar sherds from Lothal A (Fig. 98:2,5,11).

The site also has yielded typical Harappan antiquities like parallel-sided chert blades along with flakes and small blades on chalcedony.

Fig. 97 A.

1. Jar with a projected rim and slightly carinated shoulder in red ware treated with thin chocolate slip, painted with black bands on the neck and shoulder. From the surface, Pabumath.

2. Jar with a flaring rim and bulbous body treated with red chocolate slip, in red ware. From the surface, Pabumath.

3. Jar with a splayed rim and bulbous body in coarse red ware. From the surface, Pabumath.

4. Jar with a splayed rim and treated with red to chocolate slip on buff ware. From the surface, Pabumath.

5. Jar with a short flaring rim and pear shaped body in coarse red ware. From the surface, Pabumath.

6. Jar in red ware with an outturned featureless rim. From the surface, Pabumath.

7. Miniature jar in red ware in thin fabric with short flaring rim treated with a red slip. From the surface, Pabumath.

8. Dish in sturdy red ware with a heavy splayed rim. From the surface, Pabumath.

9. Dish with a nail headed rim and slight carination over the shoulder in buff ware. From the surface, Pabumath.

10. Dish in coarse red ware with a slightly projected rim. From the surface, Pabumath.

11. Dish with a slightly outturned rim in black-and-red ware. From the surface, Pabumath.

12. Bowl with a sharp rim and convex sides in red ware with red slip. From the surface, Pabumath.

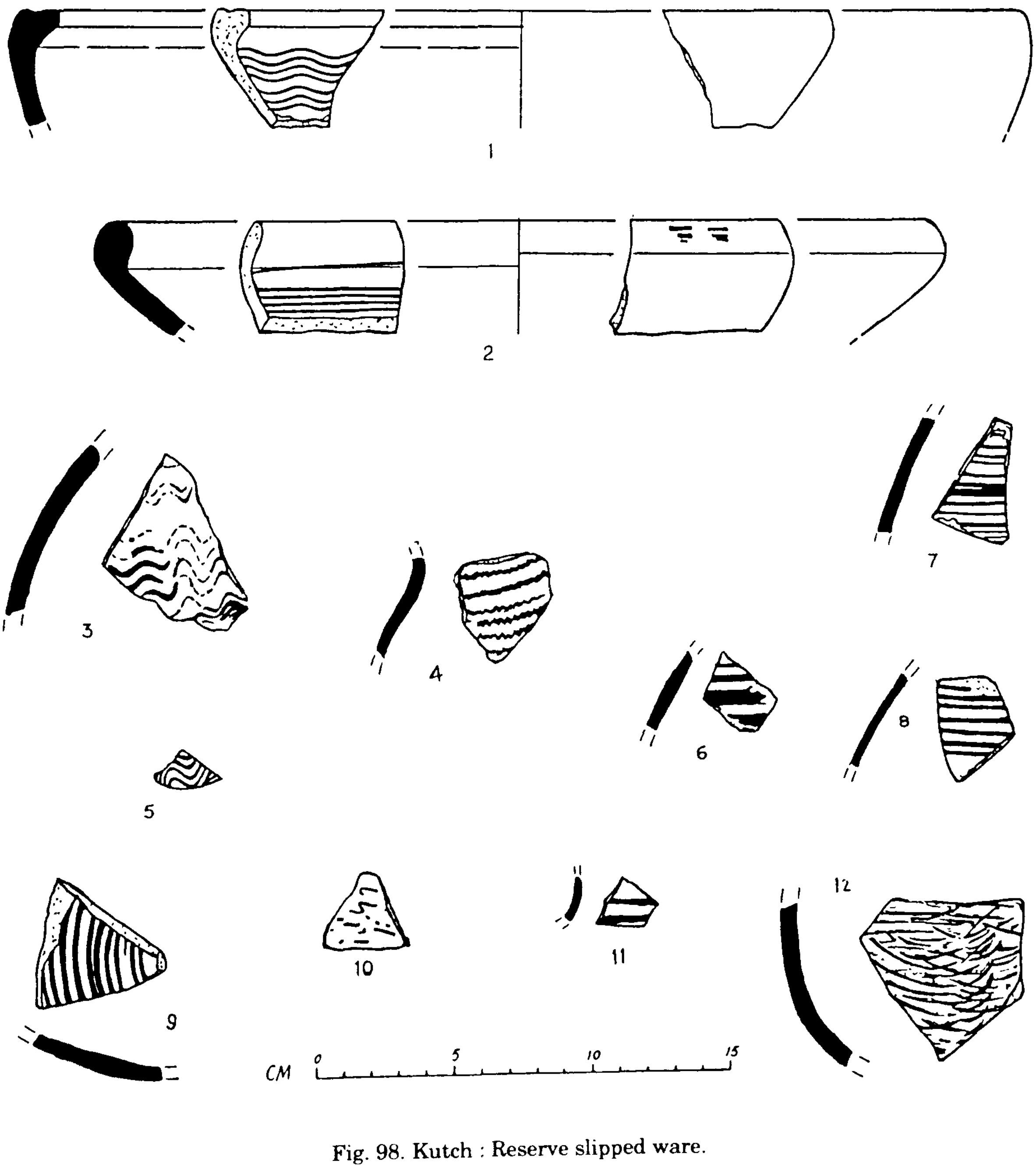


Fig. 98. Kutch : Reserve slipped ware.

13. Dish with a nail headed rim painted in black with hanging loops over a deep chocolate surface in red ware. From the surface, Pabumath.

14. Cylindrical stem of a dish-on-stand in red ware with three horizontal parallel bands in black. From the surface, Pabumath.

15. Beaded base of a stand in red ware with painted band in black over the base. From the surface, Pabumath.

16. Fragment of a perforated jar in red ware. From the surface, Pabumath.

(7) *Lakhapar*

The site Lakhapar (Lat. 23° 33' N, Long. 70° 28' E) lies 5 km northeast of the Ranaway village, Taluk Rapar. This is an extensive mound running northsouth having approximately an area of about 0.80 sq km with 5 to 6 metres deposit, on the bend of the River Dedvav. It has been intermittently washed away by rain and is being constantly damaged by the furrow of the plough.

The site has yielded Harappan red, buff, coarse black-and-red and Reserve slipped ware. Harappan red ware is represented by medium-sized jars, dishes, convex sided bowls, base of dish-on-stand and a fragment of a perforated jar.

Sherds of buff ware have been found in a large quantity but the types are limited. They consist only of small jars. Black-and-red ware is represented by some crude sherds of a late variety. Forms of Harappan red ware are comparable with those from Rangpur II A.

Harappan design repertoire includes black horizontal bands, cross-hatching over greenish-buff and whitish-buff background. Reserved slip ware is represented by sherds painted in black horizontal bands over light grey background (Fig. 98: 6-8) and compare well with similar sherds from Lothal A.

A fluted core of jasper, a flake and a blade are finds that are worth mentioning from this site. Coarse black on red ware akin to Rangmahal ware is represented by a narrow necked jar with a pinched wavy design over the rim and dish.

(8) *Jhangar*

Another Harappan site is Jhangar (Lat.23° 10' N, Long. 70° 05' E) which lies 1 to 2 km west of the village Chandrani, Taluka Anjar. It is an extensive mound covering an area of about 0.80 sq km with 5 to 6 m thick cultural deposit. The site has yielded Harappan red ware and buff ware, Reserve slipped ware. Harappan red ware has hardly got any shape except for a single jar with a flaring rim. The Harappan sherds were weathered and no designs could be made out on them. But the conspicuous presence of Reserve slipped ware (Fig. 98: 10) painted in a black horizontal band over a grey surface suggests affinity with similar material from Lothal A. The site has yielded short parallel sided blades and fluted cores. Certain flakes are retouched and utilized as scrapers. Coarse red ware is represented by a jar, spouted vessels, etc. and is evidently late in the chronology.

(9) *Kotada*

A fairly big Harappan settlement was located at Kotada (Lat. 23^0 18' N, Long. 70^0 06' E) in the Anjar Taluka. It is an extensive mound cut by a huge rain gully in between. It has a cultural deposit of approximately 7 to 10m. On the western side of the mound the present village of Kotada is situated while the eastern side is under cultivation. The mound rises slowly to a considerable height, and rain gullies yield a fairly good quantity of pottery. On the lower reaches of the mound big burnt brick walls could be seen on the surface itself. This is a fairly big site but half of it has been covered by modern occupation on the top [Pl. CXXII].

The ceramic content of this site consists of Harappan red ware, black-and-red ware and Reserve slipped ware (Fig. 98:1,9). Harappan types in red ware are represented by a thick sturdy storage jar, a small jar with bulbous body, dish, dish-on-stand (with its base as well as stem), large, thick basin, convex sided bowls, a handled bowl and perforated jars. Black-and-red ware is represented by a fragment of a shallow dish. Almost all the shapes of Harappan ware are comparable with those of Rangpur II A excepting a bowl in black-and-red ware which, on the other hand, is comparable with a similar ones from Rangpur. Harappan design repertoire consists mainly of black horizontal bands over the neck or body and light chocolate coloured vertical wavy lines over pinkish slip and horizontal bands. Chalcedony flakes and a shell bangle are the other finds from this site. Coarse red ware consists of medium sized narrow necked jars. Designs on this type of pottery are represented by black oblique strokes over the rim between simple horizontal bands.

Fig. 97 B

1. Jar having probably an 'S' shape profile, a wide mouth, a flaring rim and flange for the lid to rest. It is treated with chocolate to red slip on red ware. From the surface, Kotada.

2. Jar with a flaring rim, treated with thin red slip on buff ware. From the surface, Kotada.

3. Jar with a beaded rim and painted over with a thick black band at the shoulder portion on chocolate sliped red ware. From the surface, Kotada.

4. Jar with a nail headed rim having thick black bands over the rim and the shoulder in red ware. From the surface, Kotada.

5. Miniature jar with an outturned featureless rim in unslipped red ware. From the surface, Kotada.

6. Jar with a flaring rim and flanged shoulder in red ware having a black band on the neck on the exterior. From the surface, Kotada.

7. Jar with a flaring rim and high neck in red ware in a thick fabric, treated with red slip. From surface, Kotada.

8. Nail headed rim of shallow dish with a slightly carinated shoulder; medium fabric in unslipped red ware. From the surface, Kotada.

9. Dish with a splayed, beaked rim and cordoned shoulder with a groove in red ware. From the surface, Kotada.

10. Dish with a nail headed rim and carinated shoulder having three parallel, horizontal bands in black with over a red slipped ware. From the surface, Kotada.

11. Bowl of a thick fabric with a beaded rim in red ware. From the surface, Kotada.

12. Channel handled bowl in coarse red ware. From the surface, Kotada.

13. Channel handled bowl in fine unslipped red ware. From the surface, Kotada.

14. Dish with a bevelled rim in thick unslipped red ware. From the surface, Kotada.

15. Stand with a beaded base in red slipped buff ware. From the surface, Kotada.

16. Stands with a raised edge on the base in buff ware. From the surface, Kotada.

17. Large dish in sturdy red ware with an internally beaked rim and chocolate slip. From the surface, Kotada.

(10) *Khari-Ka-Khanda*[1]

The Harappan site at Khari-ka-khanda (lat. 23° 27' N, Long. 70° 19' E) lies 4 km east of the village Kadol in Taluka Bhachau. The name of the site itself indicates that it is a real salt waste. River Khari flows in the rainy season just by the side of the site but otherwise it remains dry throughout rest of the year and the area has been under considerable salt action. The site has also been very badly damaged by treasure hunters and dozens of robber pits could be seen on the surface itself.

The site has yielded quite a good number of Harappan red ware types, comprising mainly dish-on-stand, jars and beakers. Though salt affected sherds of Harappan origin are available, distinct shapes and designs are yet to be found.

A terracotta animal figurine, shell bangle pieces and a short parallel sided blades and cores on chert and chalcedony are available.

Fig. 97 C

1. Fragment of a dish-on-stand in red ware. From the surface, Khari-ka-Khanda.

2. Jar with a beaked rim in red ware. From the surface, Khari-ka-Khanda.

3. Dish with flanged and grooved rim in unslipped red ware. From the surface, Khari-ka-Khanda.

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[1] The clue to this site was available in the Bhuj Museum, Bhuj, where some of the pottery from this area collected by Shri Ratnani, Talati of Manfar is stored. The pottery has been marked as from Manfar. Through the courtesy of Shri Raval, the then Curator of Bhuj Museum, the pottery was examined by me and some necessary information was gathered. On exploring Manfar area nothing was found there. Most probably the pottery in the Bhuj Museum is from Khari-ka-khanda which is close to Manfar. Grateful thanks are due to Shri Raval for offering the archaeological clue to the location of the site.

4. Dish with an internally beaked rim in unslipped red ware . From the surface, Khari-ka-Khanda.

5. Stand with a beaded base in unslipped red ware. From the surface, Khari-ka-Khanda.

6. Dish with an inturned rim in thin red-ware. From the surface, Khari-ka-Khanda.

7. Stem of a dish-on-stand in unslipped red-ware. From the surface, Khari-ka-Khanda.

(11) *Pirwada Khetar*

The site Pirwada Khetar (Lat. 23° 20' N Long 70° 00' E) lies 4 km north of the village Kotada in the Anjar Taluka and 1 km south of village Nawagan. It is an extensive low mound now mainly under cultivation. Approximately, it has a deposit of 1.21 metres to 1.52 metres.

This site has yielded a few sherds of Harappan red ware represented by only thick sherds of a jar and bowls and some sherds of a late red ware. Besides these, no definite forms are available.

The importance of the site lies in the fact that a large number of chalcedony blades and flakes have been found here. This industry consisted mainly of short parallel sided chert blades and proves the existence of Harappan people in this region. Besides, a fragmentary terracotta figurine and a shell bangle piece has also been found from this site.

(12) *Kotada (Bhadli)*

As one reaches Kotada Bhadli (Lat. 23° 22' N, Long. 69° 26' E) in Nakhatrana Taluka, the landscape changes and one again finds himself in the midst of small hillocks. The Kotada Wali Nadi (local name of the stream) passing nearby cuts a deep gorge in the sandstone surroundings. Here, three mounds have been located; while Kotada Bhadli II and III are Harappan, Kotada Bhadli I is late Harappan and transitional with profuse red slipped cream ware and some developed Harappan shapes. Kotada Bhadli I is situated by the side of the present village of the same name. Both these sites, Kotada Bhadli I and II, are extensive and cover an area of about 0.30 to 0.80 sq km. These are situated amongst the hillocks which rise gradually in the vicinity. A rubble stone fortification, seen in a dilapidated condition, justifies its name.

The ceramic contents of Kotada Bhadli II and III consist of Harappan red ware, buff ware. Harappan red ware is represented by sherds of thick sturdy jar, medium-size jar, jar, dish, thin convex sided bowl and perforated jar. Buff ware has sometimes bean treated with light red slip.

Harappan red ware jar, dish and bowl are comparable with those from Rangpur II A. There is no design available over the buff ware except for occasional horizontal bands.

[1] Another Harappan fortified site has been recently discovered at Gadhvari near village Khirasara, Nakhatrana Taluka, Dist Kutch Information kindly given by Shri J M Navavati, Director Department of Archaeology, Ahamedabad, Gujarat

The site has yielded chalcedony cores, flakes, and chert blades. Some of the cores have been utilized as scrapers. Kotada Bhadli I has yielded cream slipped red ware with developed Harappan shapes and a coarse red ware akin to that from Rangmahal.

The other explored Harappan sites are (13) Selari, (14) Kanthkot, (15) Moruvo, all in Taluka Rapar, and (16) Narapa and (17) Vada in Taluka Nakhatrana yielding typical Harappan thick red ware and associated types.[1] The sites are no doubt Harappan but have very small habitational deposit.

(i) *Reserve slipped ware from explored Harappan sites*

Fig. 98

1. A well fired hemispherical basin with an inturned bevelled rim and incipient flange and buff core. On the outer side, a light tan wash is applied. A band of horizontal lines in tan on the exterior and reserve slipped wavy bands in tan red on the interior. From the surface, Kotada.

2. A well fired hemispherical basin with an inturned featureless rim and a buff core. On the outer side a band of horizontal lines in tan emerges out over a buff to greenish wash and on the interior a reserved slipped horizontal band occurs in tan colour. From the surface, Pabumath.

3. A well fired body sherd of a bulbous jar with a pinkish body. On the outer surface there are wavy reserve slipped lines in blackish pink. From the surface, Kotadi.

4. Fragment of a well burnt bulbous jar. The core and interior surface is grey, while on the exterior are close, wavy, reserve slipped bands in blue black. From the surface, Kotadi.

5. A small fragment of an indeterminate type. The core and the interior surface is grey while on the exterior there are reserve slipped wavy bands in blue black. From the surface, Pabumath.

6. A well fired fragment of a jar. The core and the interior surface is grey while on the exterior are horizontal reserved slipped bands in blue black. From the surface, Lakhapar.

7. A well fired fragment of a jar. The core and the interior surface is grey while on the exterior there are horizontal reserve slipped bands in grey and black. From the surface, Lakhapar.

8. A well fired fragment of a jar. The core and interior surface is pinkish grey while on the exterior there are horizontal reserved slipped bands in grey and black. From the surface, Lakhapar.

9. Fragment of a dish. The core and exterior surface is buffish. The interior surface has concentric reserve slipped bands in pinkish black. From the surface, Kotada.

10. Fragment of an indeterminate type. Well fired, core and interior grey, while the exterior is having wavy lines in blue black. From the surface, Jhangar.

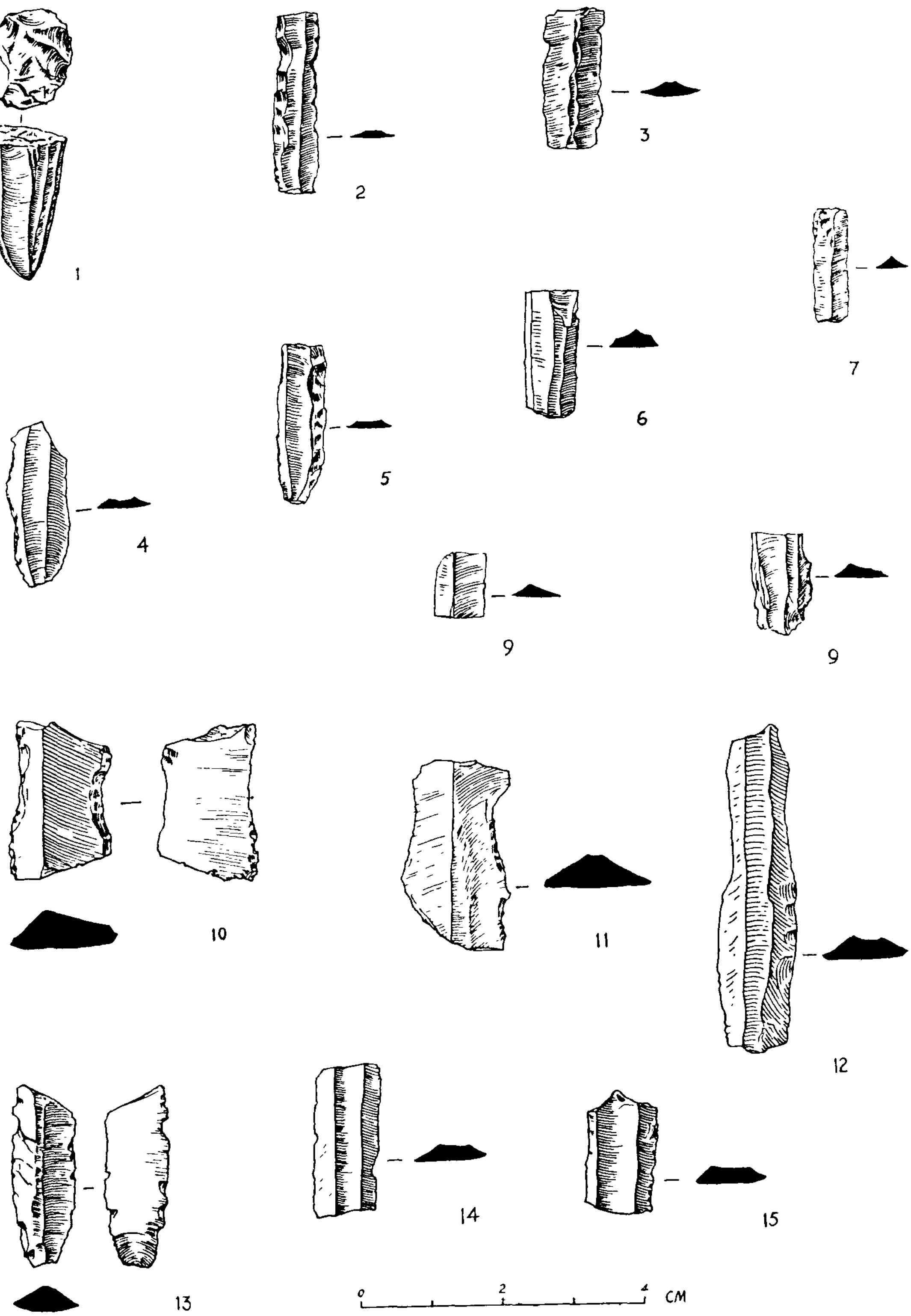


Fig. 99. Kutch : Chalcedony blades.

11. Fragment of a small jar. Well fired, core and interior grey, while the exterior is having reserved slipped horizontal bands in black and grey. From the surface, Pabumath.

12. Fragment of a jar, well fired with pinkish to light grey core, having reserve slipped parallel horizontal bands in the upper side and below there is a haphazard pattern in tan and ochre colours. From the surface, Kotadi.

(ii) *Lithic Tools from explored Harappan sites*

Fig. 99

1. Chalcedony exhausted fluted core. Ten negative scars of blades have been removed. Round striking platform. Size 2.3 x 1.4 cm. From the surface, Kotada Bhadli II.

2. Chalcedony parallel sided blade. Both margins retouched; broken bulb. Size 2.8 x 0.8 cm. From surface, Pirwada Khetar.

3. Chalcedony parallel sided blade bearing a negative flake scar on mid-ridge; the side blunted by use. Size 2.2 x 0.8 cm. From the surface, Pirwada Khetar.

4. Chalcedony parallel sided blade, tip broken, bulb visible. Size 2.5 x 0.9 cm. From the surface, Pirwada Khetar.

5. Chalcedony parallel sided blade, retouched on one side, bulb available. Size 2.5 x 0.8 cm. From the surface, Pirwada Khetar.

6. Chalcedony white parallel sided blade, blunted by use on both margins. Size 1.8 x 0.9 cm. From the surface, Khari-ka-Khanda.

7. Chalcedony parallel sided blade, blunted by use on both margins. Size 1.7 x 0.6 cm. From the surface, Jhangar.

8. Chalcedony parallel sided blade fragment. Size 1 x 0.6 cm. From the surface, Pabumath

9. Chalcedony flake blade. Size 1.4 x 1 cm. From the surface, Kotadi.

10. Chert parallel sided broken blade, retouched heavily on both the sides. Size 2.4 x 1.5 cm. From the surface, Pabumath.

11. Chert parallel sided blade with heavy retouching on one side. Size 2.8 x 1.8 cm. From the surface, Kotada.

12. Chert long parallel sided blade, retouched heavily on both sides. Size 5.5. x 1.5 cm. From the surface, Pirwada Khetar.

13. White Chalcedony parallel sided blade, serrated on both sides. Size 2.6 x 0.9 cm. From the surface, Kotada Bhadli III

14. Chert parallel sided blade, blunted by use. Size 2.2 x 1 cm. From the surface, [illegible]

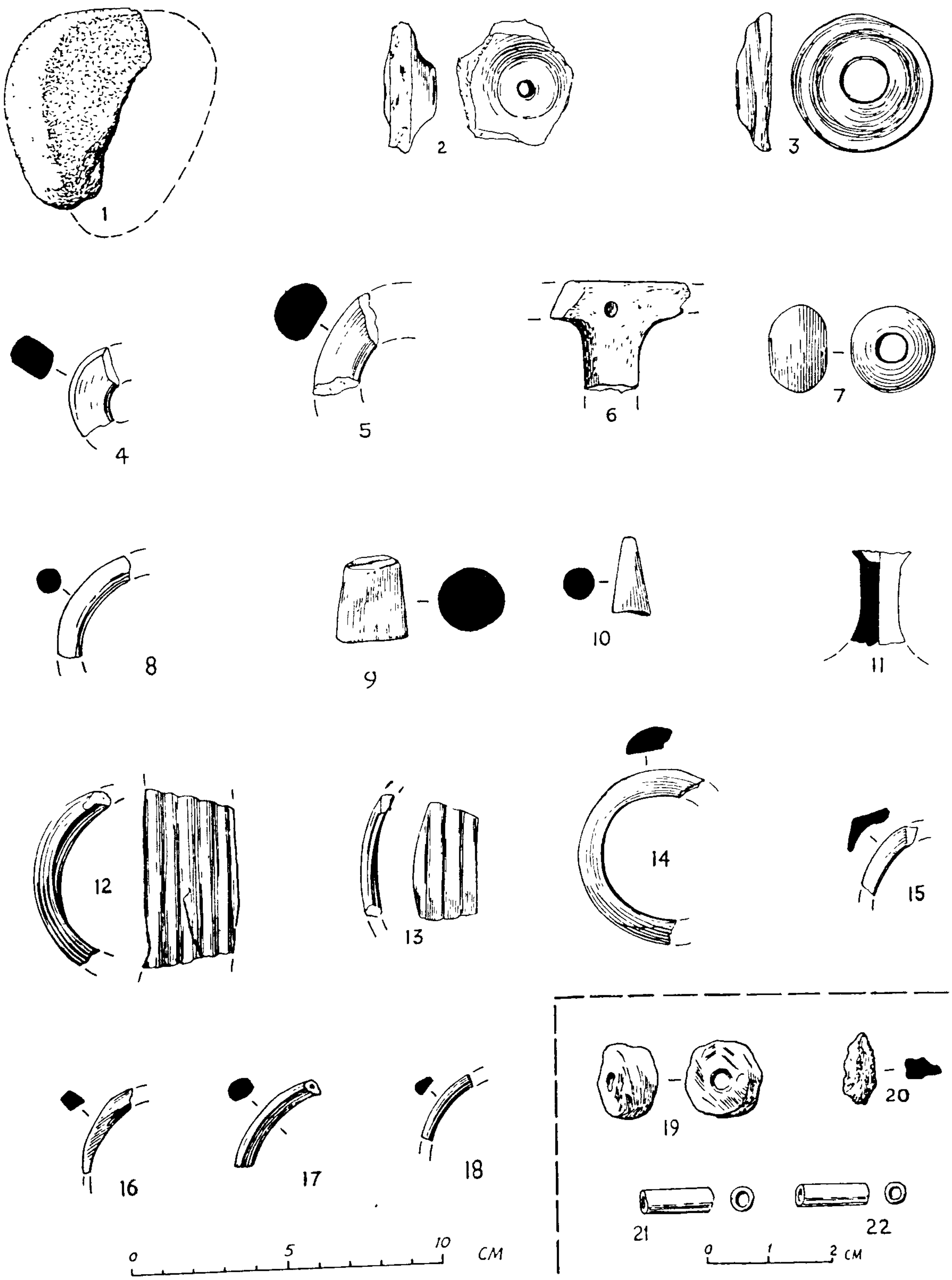


Fig. 100. Kutch : Other finds.

15. Chert engraver on blade with a point. Size 1.8 x 1.1 cm. From the surface, Kotada.

(iii) *Other finds from explored Harappan sites*

Fig. 100

1. Terracotta fragment of a triangular cake. Maximum available length 7 cm. From the surface, Kotadi.

2. Terracotta wheel with a hub. Diameter could not be discerned as edges are broken all around. From the surface, Kotadi.

3. Terracotta wheel, diameter 4.5 cm. From the surface, Pabumath.

4. Terracotta fragmentary bangle with an ovaloid section. From the surface, Kotadi.

5. Terracotta fragmentary bangle piece with a round section. From the surface, Kotadi.

6. Terracotta fragmentary piece of cart frame with a perforation. Thickness 1.5 cm. From the surface, Kotara.

7. Terracotta short circular biconvex bead. From the surface, Kotada.

8. Terracotta fragmentary piece of a bangle, round in section. From the surface, Kotada.

9. Terracotta truncated conical gamesman. From the surface, Khari-ka-Khanda.

10. Terracotta conical gamesman. From the surface, Pabumath.

11. Terracotta gamesman. From the surface, Kotada.

12. Shell bangle with five ridges. From the surface, Khari-ka-Khanda.

13. Shell bangle with four ridges. From the surface, Kotada.

14. Shell bangle with irregular section. From the surface, Khari-ka-Khanda.

15. Shell bangle fragment with triangular section. From the surface, Kotadi.

16. Shell bangle fragment with square section. From the surface, Kotadi.

17. Shell bangle fragment with round section. From the surface, Pirwada Khetar.

18. Shell bangle fragment with roughly rectangular section. From the surface, Kotadi.

19. Shell short circular bead, irragularly shaped. From the surface, Pabumath.

20. Copper fragment, indeterminate. From the surface, Kotadi.

21. Lapis Lazuli long, cylindrical, circular bead. From the surface, Kotadi.

22. Lapis Lazuli long, cylindrical, circular bead. From the surface, Pabumath.

E. POST HARAPPAN SITES

A red slipped cream ware available at Desalpar I B levels was found at Kotada Bhadli, Lakhapar and Aloda (Taluka Rapar), Virani, Daulatpur and Mora (Taluka

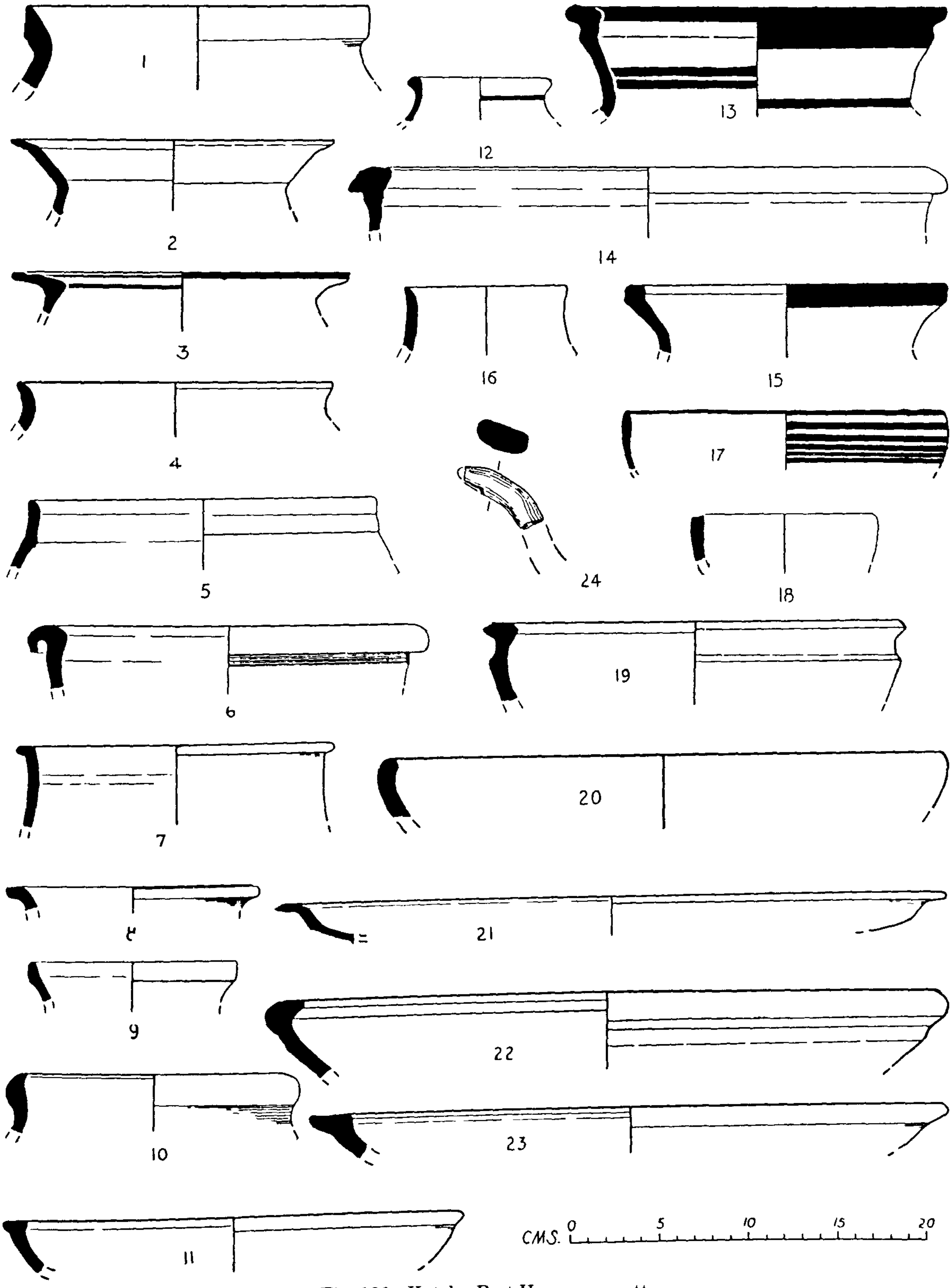


Fig. 101. Kutch : Post Harappan pottery.

Nakhatrana) and Serki (Taluka Mandavi). The shapes consist of carinated dishes, shallow dishes, jars with ledged flanged and high necked rim. Particularly, the dish type has its parallel in the Harappan ware. Associated with the ware are microliths on semiprecious stones and pottery of the early historical period.

Fig. 101

1. Jar with a medium thickness having a vertically cut rim in buff ware. From the surface, Naini Mau.

2. Jar with a splayed rim and high neck in a thin buff ware. From the surface, Selari.

3. Jar with a flat and projected rim in buff ware painted in black over red on the rim on both the sides. From the surface, Virani.

4. Jar with a featureless rim in buff ware. From the surface, Vada.

5. Jar with a straight beaded rim in red ware. From the surface, Pirwada Khetar.

6. Basin with an externally outturned drooping rim in red ware. From the surface, Solari.

7. Jar with a flat and slightly projected rim and high neck in red ware. From the surface, Solari.

8. Jar with a beaded rim in red ware. From the surface, Pirwada Khetar.

9 Jar with a bud shaped rim in red ware. From the surface, Pirwada Khetar.

10. Jar with a beaded rim in red ware. From the surface, Pirwada Khetar.

11. Dish with a beaded rim in buff ware. From the surface, Lakhapar.

12. Jar with a beaded rim in red ware. From the surface, Lakhapar.

13. Jar with a projected rim and a slight carination, painted with black over red on both the surfaces. From the surface, Kotada Bhadli I.

14. Jar with a nail headed rim in red ware. From the surface, Pirwada Khetar.

15. Jar with a grooved rim in painted black over buff ware. From the surface, Lakhapar

16. Almost straight sided, sharp, featureless rim in buff ware. From the surface, Solari

17. Deep bowl with a sharp rim having a black horizontal band.

18. Bowl with a vertical featureless rim in red ware. From the surface, Pirwada Khetar.

19. Dish with a nail headed rim and carination at the shoulder in buff ware. From surface, Naini Mau.

20. Dish with a incurved beaded rim in buff ware. From the surface, Nenu-ni-Dhar.

21. Dish with a long projected rim and carinated shoulder in unslipped red ware. From the surface, Solari.

22. Dish with an inturned beaded rim in buff ware with a red slip. From the surface, Hamirai.

23. Dish with a splayed and flat rim in unslipped red ware. From the surface, Kerasi.

24. Handle of a vessel in red ware. From the surface, Kerasi.

F. CAIRNS [Pls. CXXIII and CXXIV]

At Sayakhan-ni-Vandh near Lodhrani (Taluka Rapar) nine circular cairns with a heap of rubble have been noticed on the slope of the Nilva Hills in close proximity to a prehistoric bund. Out of these nine cairns, bigger one is having a diametre of 4.40 m and height of 1.10 m and the other cairns have diametre of 2 m and height of 50 cm. The area has yielded considerable microliths including blades, flakes and cores, a few lunates and scrapers. In the neighbourhood a small rubble wall of antiquity has also been noticed. The exact nature of the cairns could not be determined; of course, the surroundings do give a strong feeling of megalithic cairns, but unfortunately, the associated pottery is not available.

G. EARLY HISTORIC AND HISTORIC SITES IN KUTCH

As has been already pointed out, Kutch and its people are referred to in *Panini's Ashtadhayayi*[1] but this early reference does not give any idea of the political condition of that region. The historical period of Gujarat begins with the 3rd Century B.C. and similarly the beginning of the historical period of Kutch is also to be inferred likewise. Whether the Macedonian conquerer Alexander the Great passed through Kutch[2] is a matter of considerable doubt and in all probability he did not. He had passed through the lower Indus region but did not touch Kutch. It is plausible to infer that Chandragupta Maurya's domain might have included Kutch but no direct evidence is available. Since he was holding sovereignty over Saurashtra, Kutch might have been included in that.[3]

Due to the availability of the coins of Menander, Eukratides and Appolodotus in Kathiawad, it has been argued that Kutch might have also been under their influence. Since the lower Sind region was under their sway, the close proximity of Kutch makes one inclined to regard the hold of Indo-Greeks in the region of Kutch also.[4] The references to Abiria of Greeks have to be taken into consideration with some caution in this respect. Whether it refers exactly to Abhira supremacy in Kutch is yet to be confirmed. Sankalia's categorical rejection of the identification of Abhira with *Ablinas* of the Kutch does not seem to be very much justified.[5]

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[1] Agrawala, *op. cit.*, 1953, pp 65-68

[2] Vincent, 'Macedonian Conqueror's March through Kutch' *Journal of the Royal Asiatic Society*, 1834

[3] *Epigraphia India*, Vol. VIII (1905-06) p 41

[4] *Gazetteer of Bombay Presidency*, Vol. 1

[5] Sankalia, *op cit.*, 1968, p 24

The Saka Kshatrapa ruler, Rudradaman's Junagadh inscription is one of the most important records of A.D.150 wherein Kachchha seems to be a separate kingdom and is mentioned in the list of conquered areas including Anarta, Saurashtra, Saubhira and Sindhu Sauvira. It deals with the reconstruction of the large Sudarshana Dam for storing the waters of *Suvarnasikata* and *Palasini* originating from the Girnar Hill which was originally built by Pushyagupta, the Governor of Chandragupta Maurya. It was repaired by the Pahalva Suvishakha, the then Governor of Saurashtra and Anarta.[1]

The Sakas had been ruling for about four centuries over Kutch, Saurashtra, Gujarat, northern Maharashtra and Malwa with their capital at Ujjain and hundreds of their coins have been found all over the area besides their inscriptions in Saurashtra and Kutch.

Very interesting light has been thrown by the discovery of a few Kshatrapa inscriptions from Kutch on the geneaology and history of the Kshatrapa dynasty and their rule over western India in general and over Kutch in particular.

At present. there are eight inscriptions and out of these, seven are inscribed on memorial stones.[2] It is of considerable interest that at such an early date, i.e. from 52-114 Saka Era inscribed memorial pillars are called in the inscriptions as 'lasti'. It may be recalled that 'Yasti' is used in the copper plate inscription of Kanishka, *c.* A.D. 89 and indicates a memorial pillar. The tradition of putting memorial stones has been of considerable antiquity in India. The present memorial stones bear testimony to the tradition of erecting such memorial stones on simple slabs or upright pillars of stone which are inscribed giving the geneaology of the reigning king and the name of the person responsible for their erection and date in memory of the deceased.

The earliest of these memorial stones numbering four were found at Andhau, a very small village close to Khavda in the Kutch. It is situated in Latitude 23°10"N., Longitude 69°53' 55"E. All the four inscriptions refer to the region of the king Rudradaman, son of Jayadaman. His name is immediately preceded by that of his grandfather, Chastana, son of Ysamotika. No relationship between Rudradaman and Chastana has been given and the date is 52. The language of the inscription is Prakrit and the letters are of the northern variety of Brahmi alphabets of the 1st-2nd century A.D. Since the relationship has not been very clear between Chastana and Rudradaman, scholars have been making all sorts of conjectures. But a recent stone inscription which was noticed previously from Khavda itself[3] gave the genealogy of the Kshatrapas as Ysamotika, his son Rajan Mahakshtrapa Svami Chastana, his son Rajan Svami Jayadaman and his son Rajan Svami Rudradaman. Thus, this inscription has filled up the gap and has clearly given a complete genealogy of various kings of the line of Chastana. The latest inscription which has been observed in the Bhuj Museum gives a complete genealogy up to the son of Rudraman, i.e., *Mahakshtrapa Svami Rudrasinha*.

The range of those memorial pillar inscriptions is from 52-114 *Saka Era* and two

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[1] *Epigraphia Indica* Vol. VIII (1905-06), p 41

[2] D R. Bhandarkar, *Progress Report of the Archaeological Survey of India, Western Circle*, for year ending 31st March, 1915. pp 67-68; *Epigraphia Indica*, Vol XVI, Part I, pp 23-25

[3] *I.A.R.*,1960-61, p 44

of these inscriptions refer to Abhiras. Undoubtedly, Abhiras were having a very influential position in the Saka court. The Gupta stone inscriptions of the time of Rudrasinha I also records an Abhira General.

These memorial inscriptions mention, besides the date and the genealogy, a few of the Gotras, e.g., Opasati (Apasetik Srenika Gotra), Dev Mokas Gotra and Saritas Gotra. The memorials have been raised by the father to a son, by brother to his brother-in-law, and by a husband to his wife.

Thus, these records clearly indicate that the region of Kutch was under the domain of Kshtrapas from the time Rudradaman to Rudrasinha. Abhiras were holding a very important position during the rule of the Kshtrapas. The inscription of Abhira Ishvaradeva from Daulatpur in Kutch is the earliest inscription mentioning Saka Era by name and thus antedats the Vakataka inscription of Devasana which mentions the Saka Era 380.[1]

A large number of mounds numbering forty have been examined and the pottery found on these is akin to the painted pottery from Rangmahal. This corroborates further that, during the early centuries of the Christian era, the Rangmahal influence was prevailing in the area. The Epigraphical, numismatic, and also the ceramic evidence proves that Kutch was under the Saka rule during the time that marks the Early Historical Period.[2]

Early historical painted pottery has been found at Jhangar, Kotadi and Pirwada Khetar in Taluka Anjar; Halrae and Kanthkot in Taluka Bhachau; Dhorawar, Dhorbana, Juna Andhau, Juna Sandhara, Juno Moro, Namirai and Rav Warimov in Taluka Khavda; Naini Mau and Serdi in Taluka Mandvi; Kotada Bhadli II-III, Mora, Pakhra Dungar, Pakhari Talavadi and Virani in Taluka Nakhtrana; and Aloda, Brajawani, Colia, Gadadhar-Gadhada, Gadhada, Gamania-ni-Timbil, Gogari ni Wadhi, Jakka-ni-thar, Junawama, Kerasi, Morvo, Pabumath, Padhrod, Sobharel and Tekra in Taluka Rapar.

The pottery from the above sites is predominantly a wheel-made red ware and painted like the Rangmahal ware. The designs are generally all over the pot or sometimes on rims only. The types include mainly wide mouthed, high necked jars. The design repertoire consists of oblique strokes, horizontal lines, net patterns, suspended loops and wavy lines. The ceramics are available in almost all the sites referred to above.

Besides Rangmahal, such painted black on red ware is reported (also from Taxila (Sirkap) Phase I-VI (second-half of the first century B.C. to second century A.D.) from a large number of sites in Bikaner area in Rajasthan, and from Hastinapur in Uttar Pradesh. In Kutch this pottery could be associated with the Kshatrapa rule, i.e., 1st century B.C. to the 4th century A.D.[3]

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[1] Sankalia: *op. cit.*,1968, pp 242-243; J.M. Nanavati and M.G. Shastri, *J.I.O.S.*, 1962. p.238; *Proceeding of V Oriental Congress*, 1930, p 565

[2] From Kutch, Rao had earlier reported sites of Rangmahal culture : Godhra, Munda, Jora Dhumai, Sankhavar, Parjain and San Rao, *op.cit.*, 1962, p. 187

[3] A.Ghosh, 'Taxila (Sirkap), 1944-45', *Ancient India*, No.4.,1947, pp 50, 68. figs 15, 16;Y.D Sharma,'Exploration of Historical Sites', *Ancient India*. No 9, pp 150-151, fig 10-11; A. Ghosh. 'Exploration in Bikanir' in Henry Field, *An Anthropological Reconnaissance in Western Pakistan*, p.215. "That the culture flourished in the early centuries A.D. there is little doubt." Lal, *Ancient India*, Nos. 10-11.

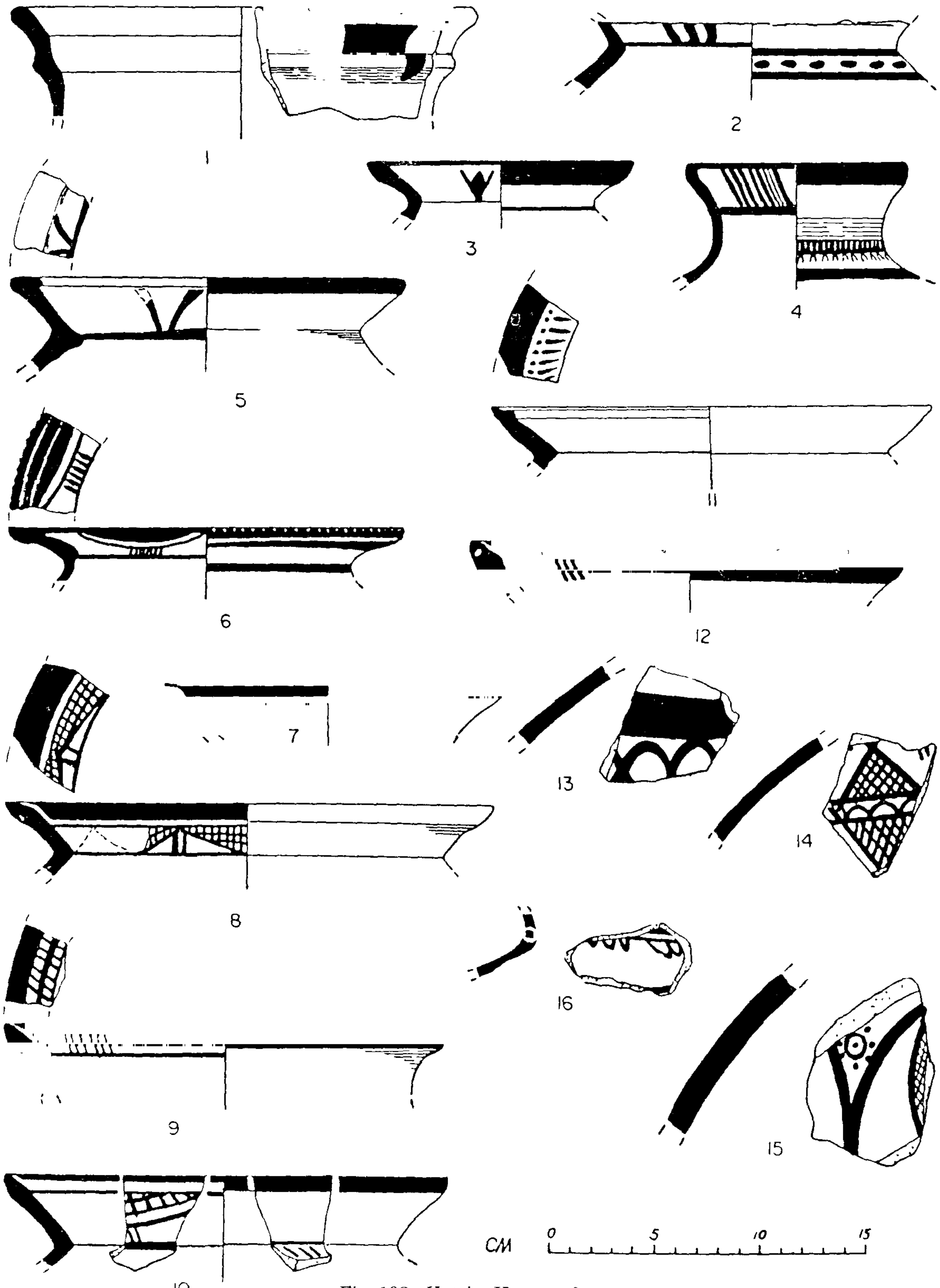


Fig. 102 Kutch . Historical pottery.

Fig. 102

1. Jar with a beaded and flanged rim in coarse red ware having one thick black horizontal band and thick suspended solid loops executed over a red slipped surface. From the surface, Lakhapar.

2. Shoulder portion of a jar in red ware painted with three vertical bands on the inner side and running dots within two horizontal bands on the outer side. From the surface, Selari.

3. Jar with a splayed rim painted outside with a black band and inside across a thin black band there is a crude representation of a bud like object. From the surface, Lakhapar.

4. Jar with a high neck and slightly incurved, flat rim with a profusely painted group of oblique lines on the rim on the inner side, and a horizontal band and hanging loops below the incised nail patterns on the outer side. From the surface, Sobhrel.

5. Jar with a splayed rim having a nail incised pattern on the edge and a painted horizontal band in black on the inner side. From the surface, Gogari-ni-Wadi.

6. Jar with a projected flat rim; inner sides have hanging loops and the outer side has horizontal , parallel bands in black on red surface. The rim is also having incised nail patterns. From the surface, Kerasi.

7. Jar with a splayed rim painted on both the surfaces. From the surface, Kerasi.

8. Jar with a sharp splayed -out rim having painted hanging, cross-hatched triangles within horizontal lines. From the surface, Pirwada Khetar.

9. Jar with a splayed rim painted with oblique bands and horizontal lines inside and a thick band outside. From the surface, Dhorbana.

10. Jar with a splayed rim; cross-hatched loops and oblique strokes are painted on the rim. From the surface, Dhorbana.

11. Jar with a splayed rim; oblique strokes are painted with dots. From the surface, Dhorbana.

12. Bud shaped rim of a jar painted with horizontal bands and oblique strokes. From the surface, Kanthkot.

13. Fragment of a jar with thick painted band and roundels. From the surface, Jakka-ni-Thar.

14. Fragment of a jar with painted cross hatched triangles separated by a running row of semicircles. From the surface, Dhorbana.

15. Fragment of a jar painted with a circle surrounded by dots within a festoon and a cross hatched pattern. From the surface, Kotadi.

16. Fragment of a jar painted with closely running oblique loops under a horizontal band. From the surface, Kotadi.

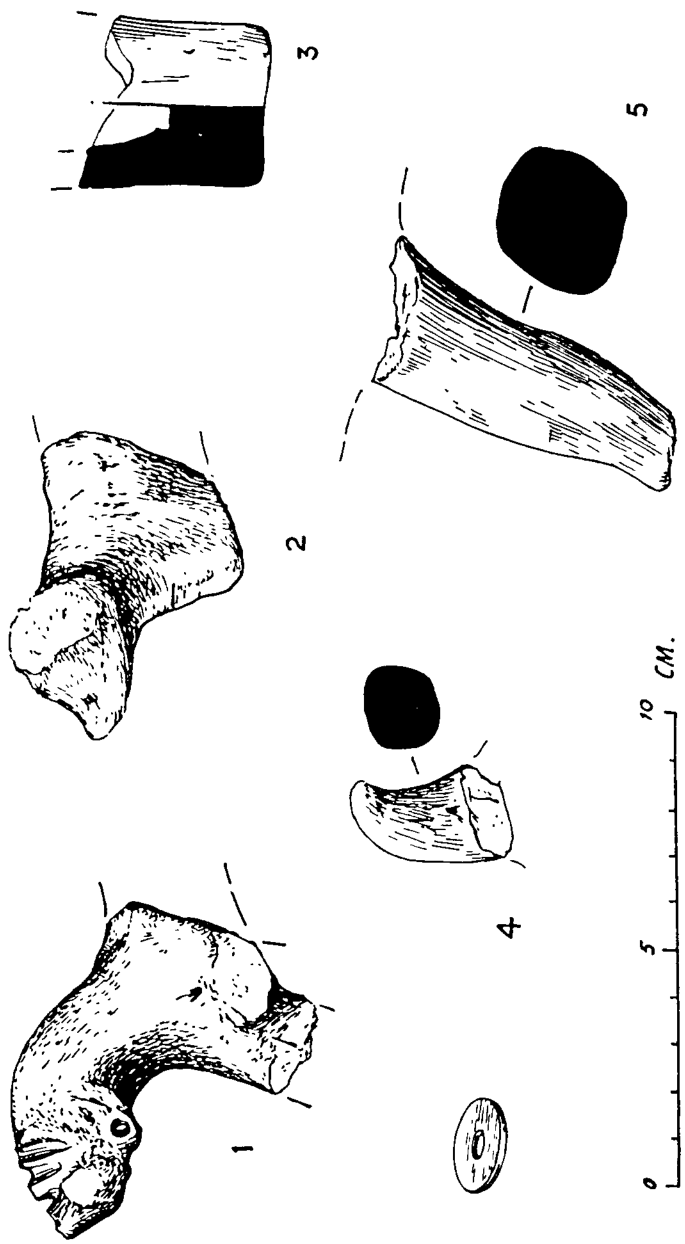


Fig. 103. Kutch : Terracotta objects.

(i) *Other finds (Terracotta) from explored Early Historical sites*

Fig. 103

1. Terracotta head of a figurine of horse(?) with broken front legs. From the surface, Khari-ka-Khanda.

2. Terracotta fragment of a figurine of a dog. From the surface, Pirwada-Khetar.

3. Terracotta hand made cylindrical object. From the surface, Khari-ka-Khanda.

4. Terracotta fragmentary horn of a bull figurine. From the surface, Sobharel.

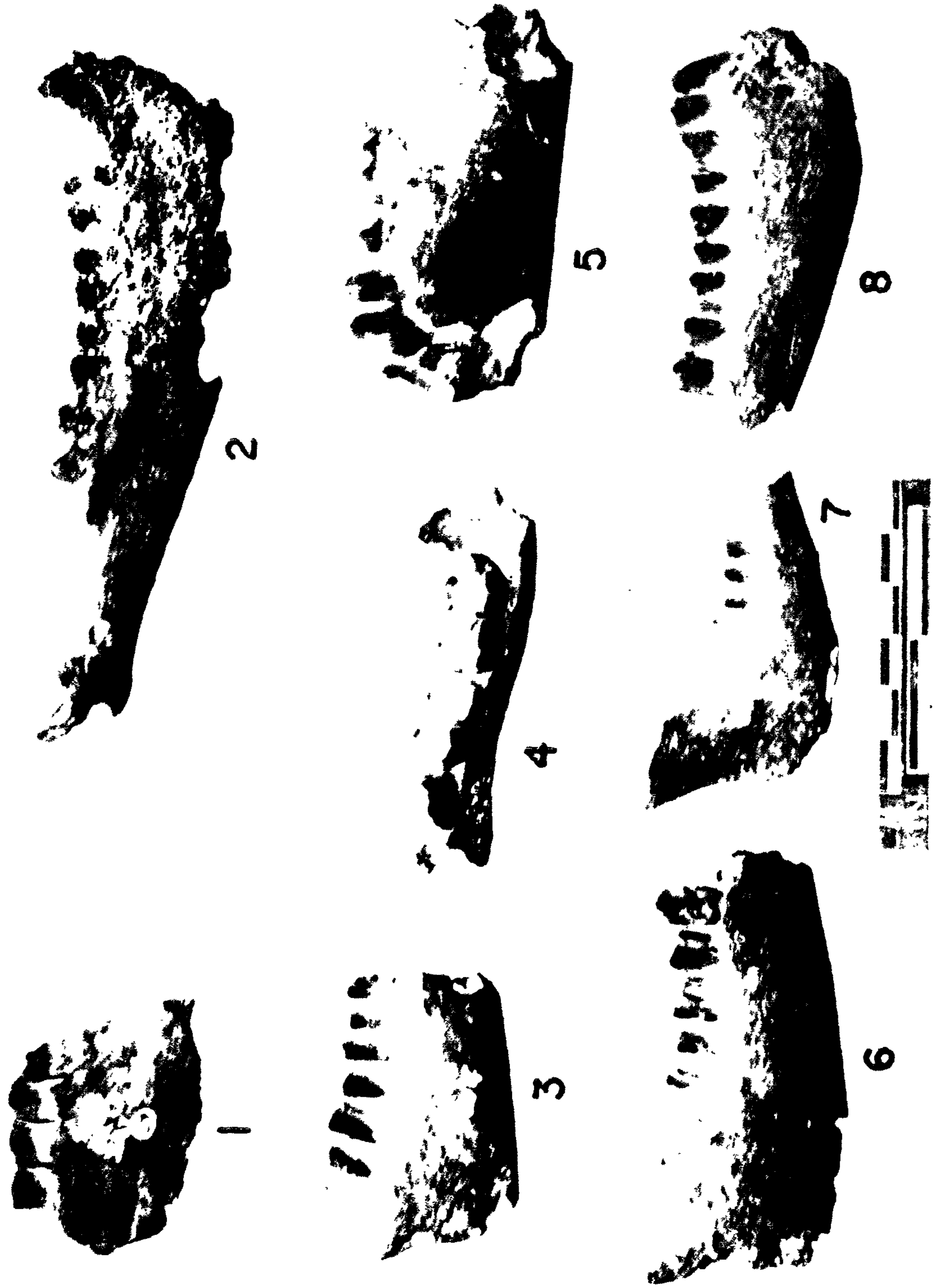
5. Terracotta fragment of the leg of an animal figurine. From the surface, Kerasi.



Pl. XCIV. Animal remains. *See pp.* 375, 377, 379-380



Pl. XCVI. Animal remains. See pp. 377, 379



Pl. XCVII. Animal remains. *See pp. 377, 379-380*



Pl. I. General view of the mound from south (before excavation). *See p. 14*



Pl. II. General view of the mound from west. *See p. 14*



Pl. III. View of the bastion from north-east. *See p. 14*



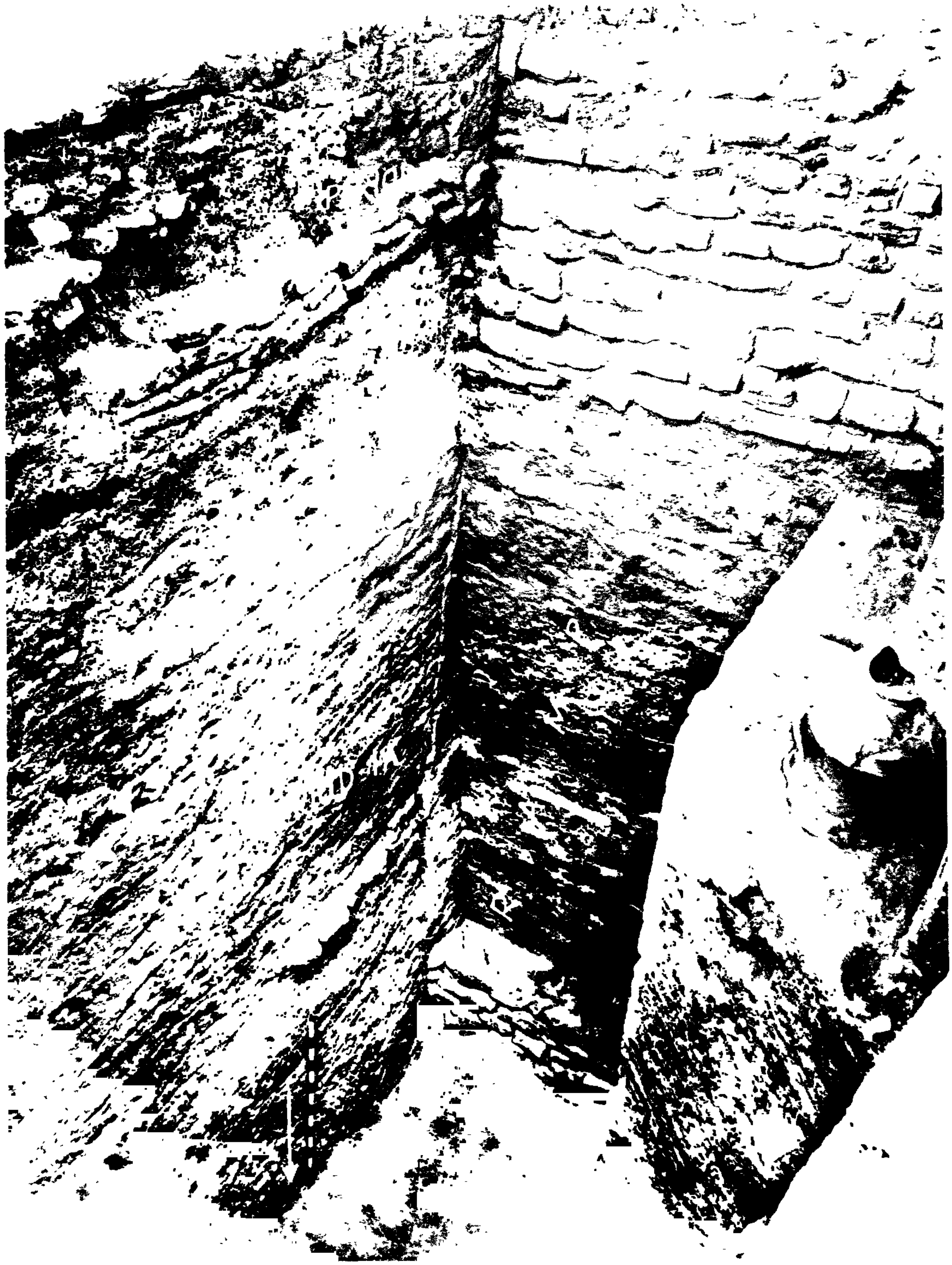
Pl. IV. Entrance indicated by the depression in between the upper and lower areas. *See p. 14*



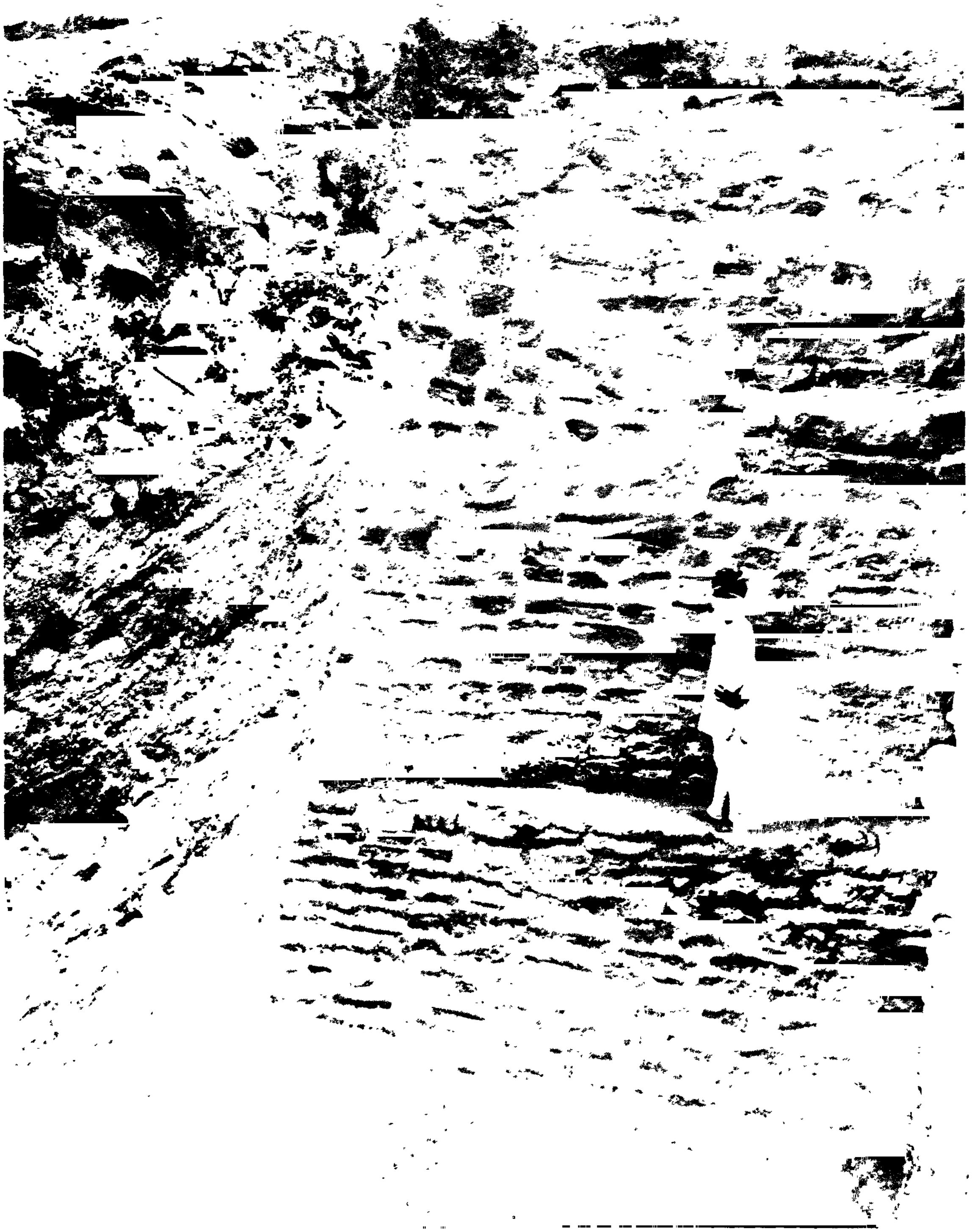
Pl. V. General view of the layout of the excavated trenches during excavation in the citadel area. *See p. 15*



Pl. VI. Distant view of the excavated remains from south. *See p. 18*



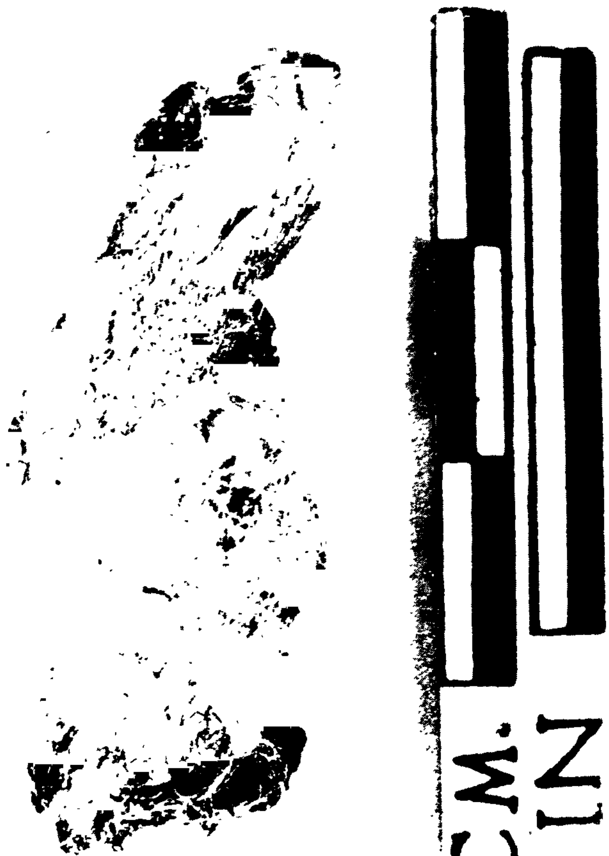
Pl. VII. Culture sequence and successive ramparts of Period IA, IB and IC in trench D1, Qd.2 in citadel area (inner). *See p. 21*



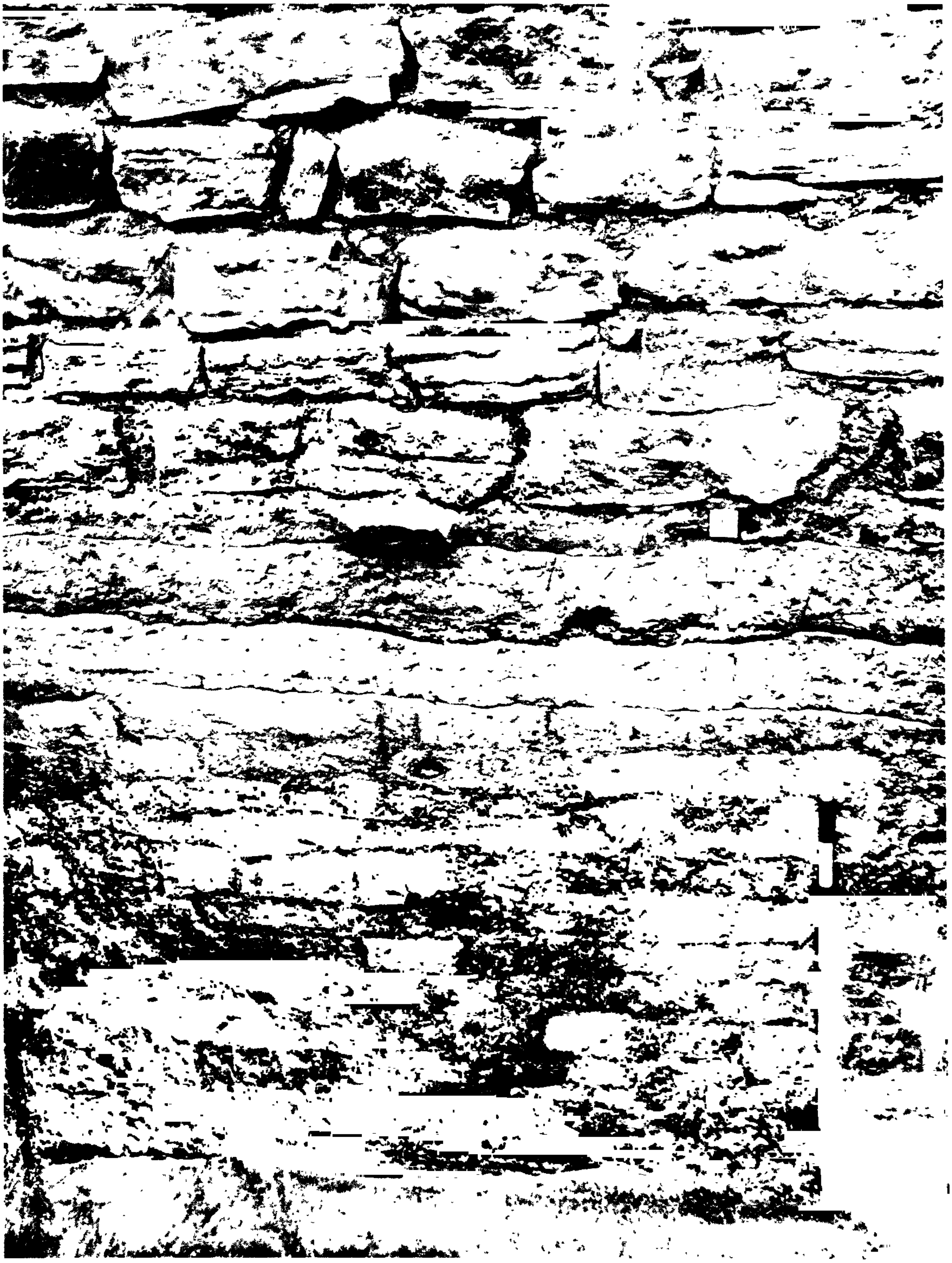
Pl VIII Rampart of successive Periods (Outer). *See p. 28*



Pl. IX. Structures of successive Periods in the residential annexe. *See p. 21*



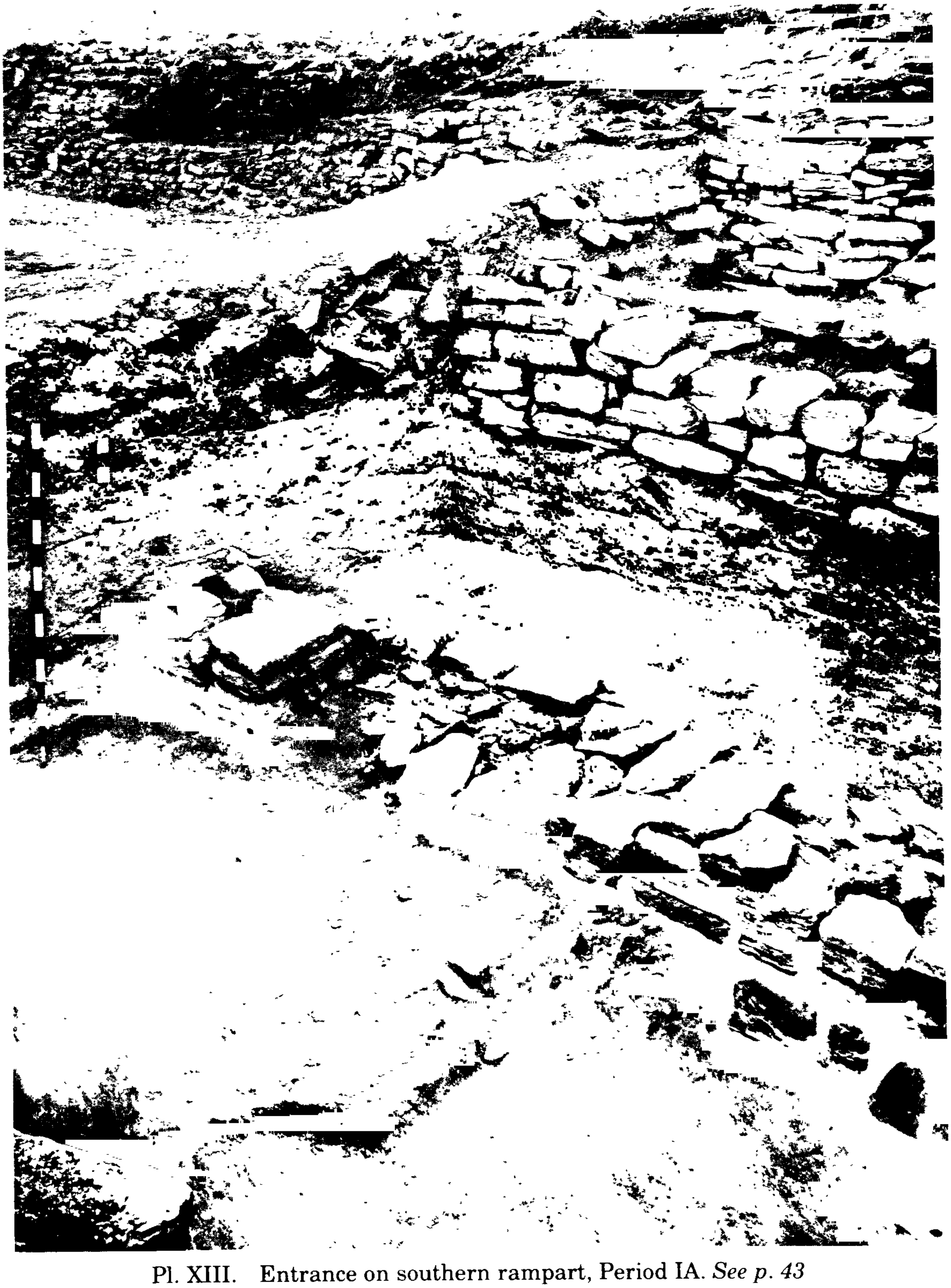
Pl. X. Charred rope, Period IA. *See p. 23*



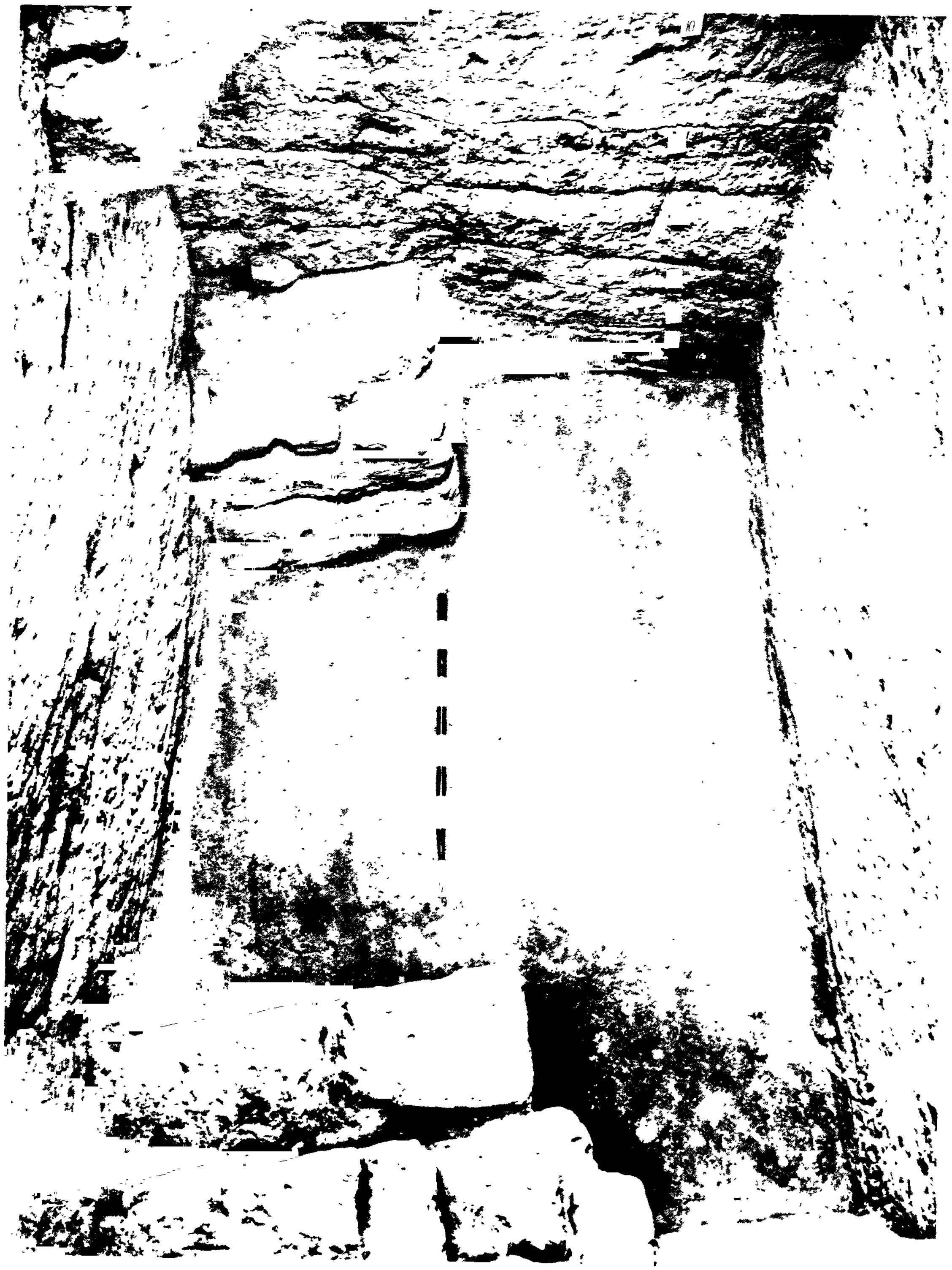
Pl. XI. Western rampart of the citadel, Period IA. *See p. 42*



Pl. XII. Eastern rampart of the citadel having stone veneer of Period IA. See p. 42



Pl. XIII. Entrance on southern rampart, Period IA. *See p. 43*



Pl. XIV. Partially exposed lane in citadel area, Period IA. *See p. 44*



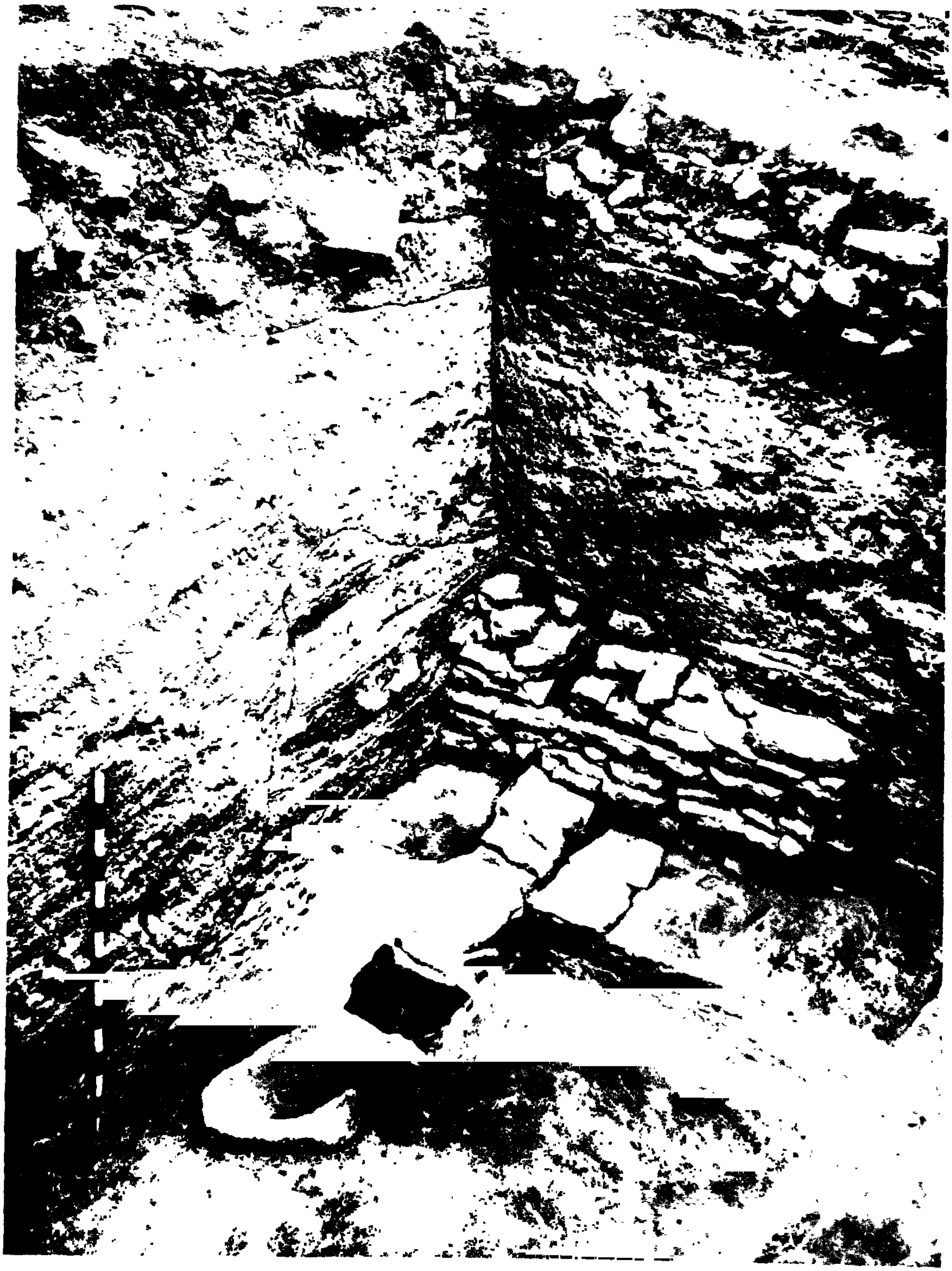
Pl. XV. Eastern rampart of the residential annexe, Period IA. *See p. 45*



Pl. XVI. General view of the entrance in the south-eastern side of the rampart of residential annexe, Period IA. *See p. 45*



Pl. XVII. General view of the lane with houses on either side and drains in the residential area, Period IA (ZF1). *See p. 45*



Pl. XX. Drain in the residential area, Period IB. *See p. 49*



Pl. XXI. Partially exposed room in the residential area, Period IB. *See p. 49*



Pl. XXII. General view of the citadel and residential annexe, Period IC. *See p. 49*



Pl. XXIII. Western rampart of the citadel, Period IC. *See p. 49*



Pl. XXIV. Evidence of sagging in the south-western bastion, Period IC. *See p. 51*



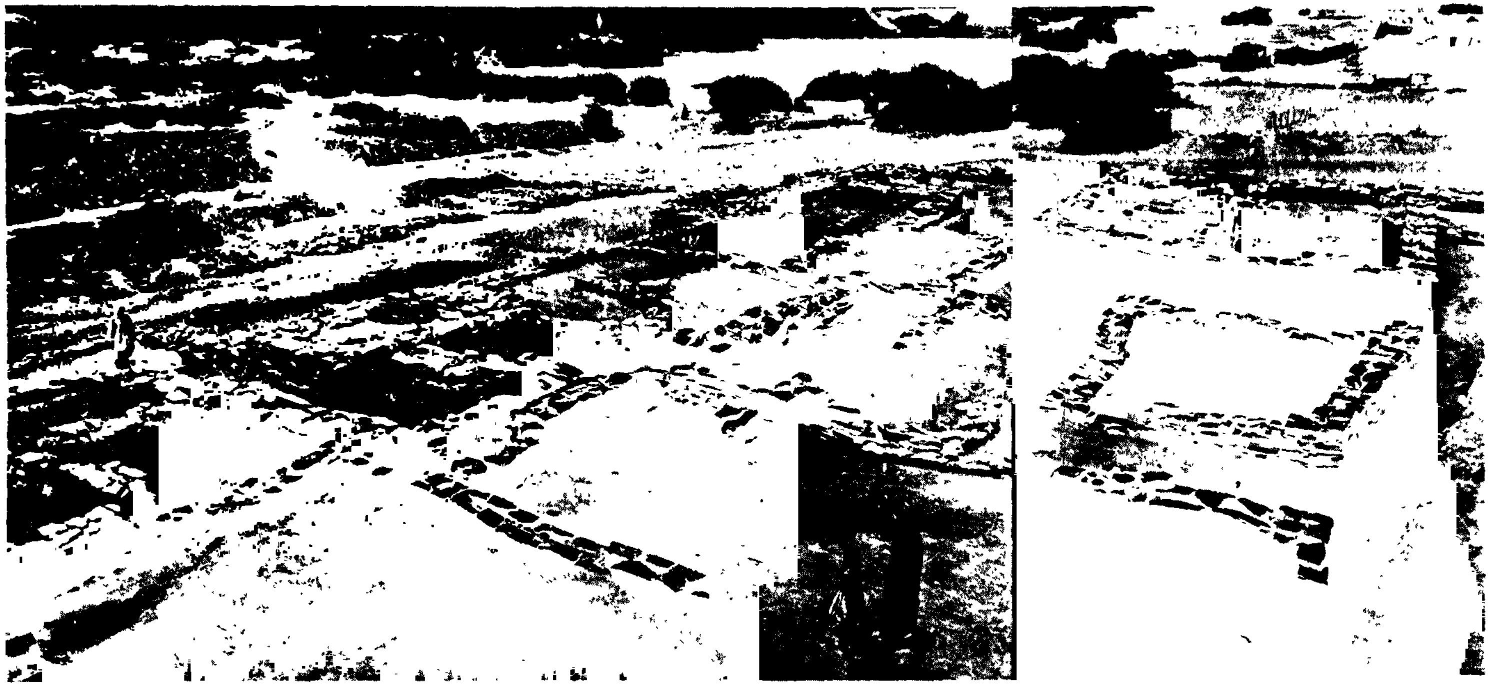
Pl. XXV. Centrally placed gateway complex, Period IC. *See p. 51*



Pl. XXVI. Inter-communicating gate between citadel and the residential area, semi- circular pedestal on citadel sides blockings and a drain of two phases and a screen wall, Period IC. *See p. 52*



Pl. XXVII. Blocking of the intercommunicating passage and drain, Period IC. *See p. 52*



Pl. XXVIII. General view of the houses inside the citadel area, Period IC. *See p. 53*



Pl. XXIX. General view of the drain in the citadel area, Period IC. *See p. 56*



Pl. XXX. General view of the residential area houses and ramparts, Period IC. *See p. 56*



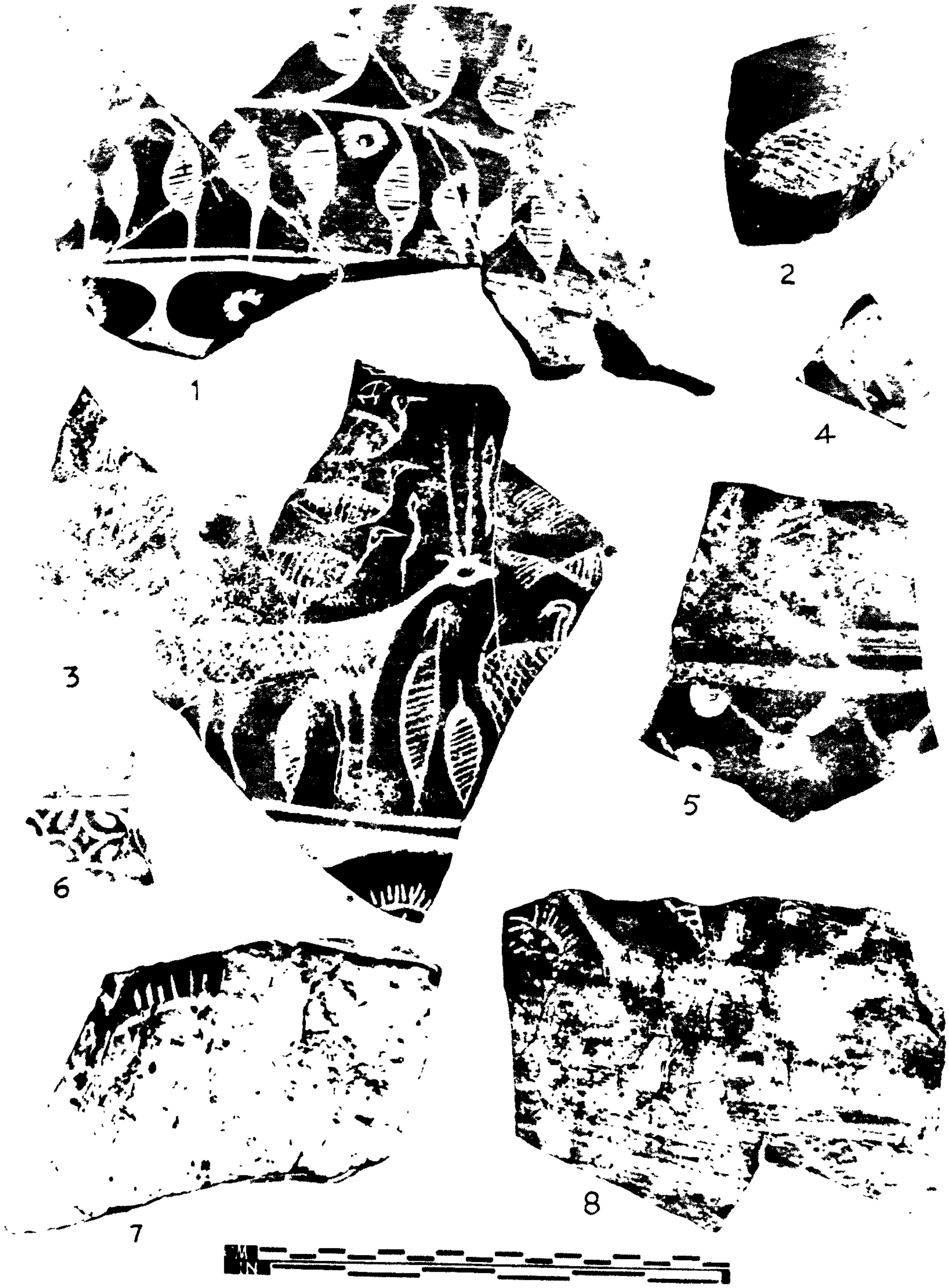
Pl. XXXI. Bastion of the rampart, Period IC. *See p. 57*



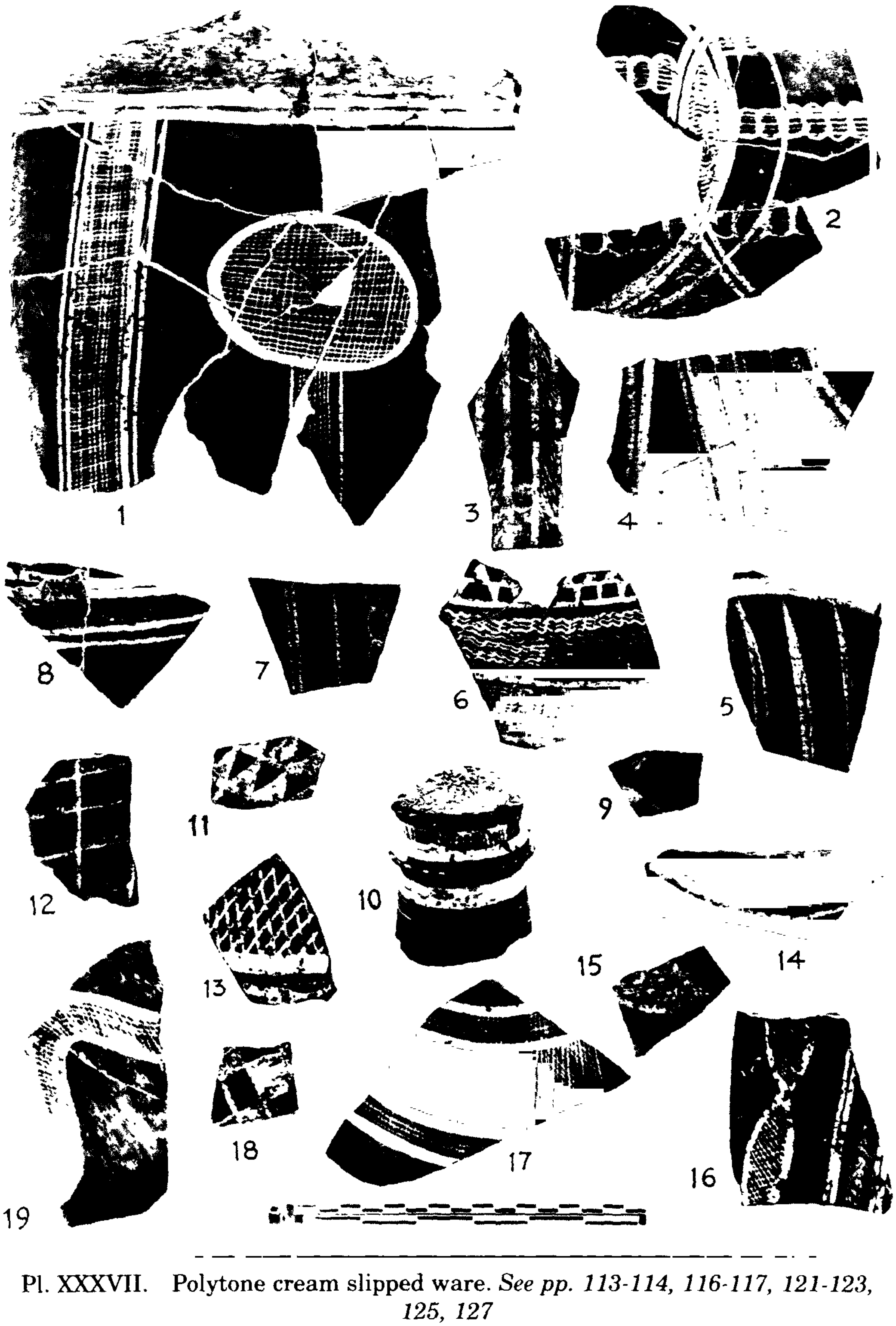
Pl. XXXII. Houses in the residential area, Period IC. *See p. 57*



Pl. XXXIII. Stone pavement in the enclosed courtyard of a house in the residential area, Period IC. *See p. 57*



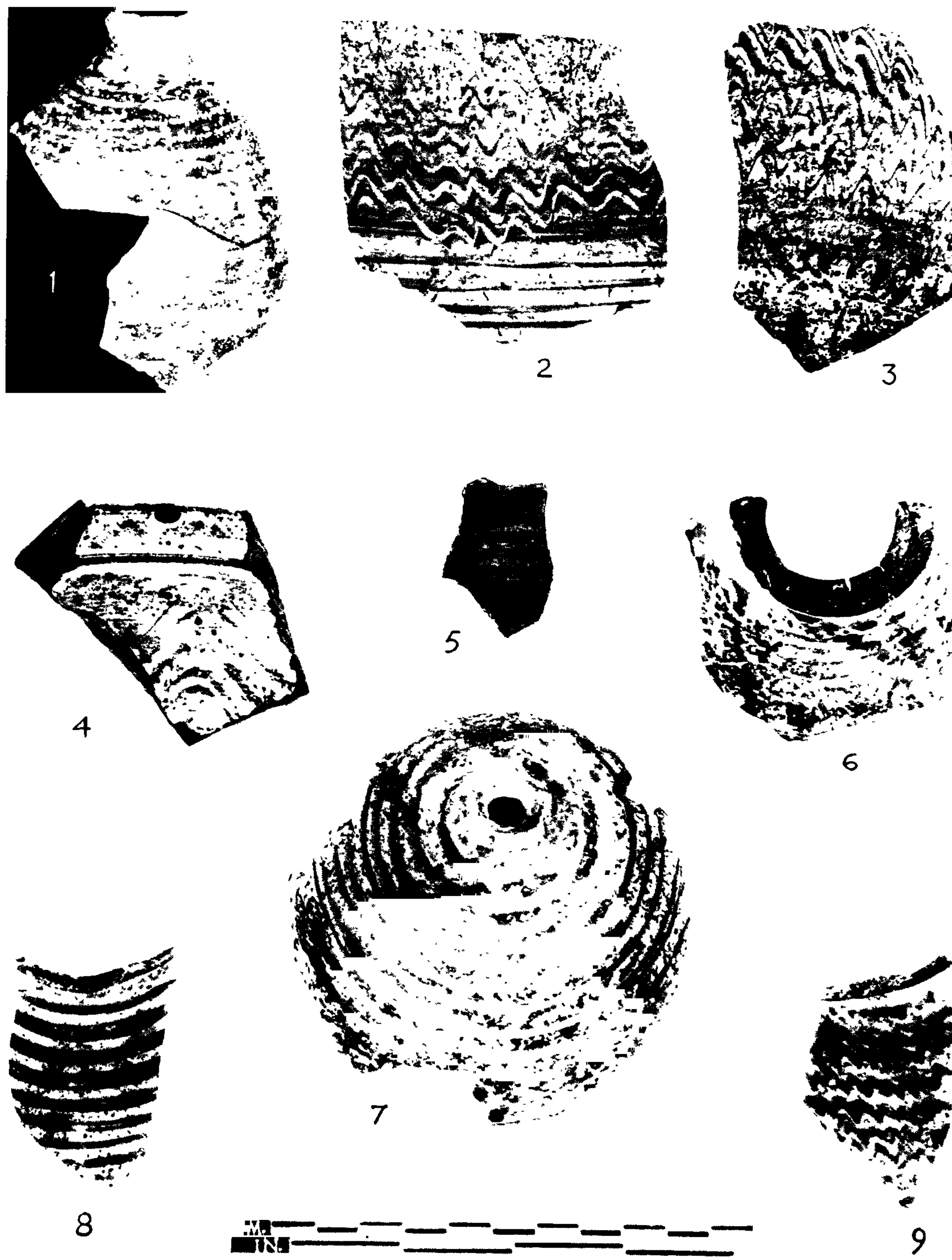
Pl. XXXVI. Harappan painted pottery. *See pp. 99-101*



Pl. XXXVII. Polytone cream slipped ware. *See pp. 113-114, 116-117, 121-123, 125, 127*



Pl. XXXVIII. Polychrome red ware. *See pp. 127, 129, 131-132, 135-136*



Pl. XXXIX. Reserve slipped ware. *See pp. 145-146, 148*



Pl. XL. Black-and-red ware. *See pp. 243-245*



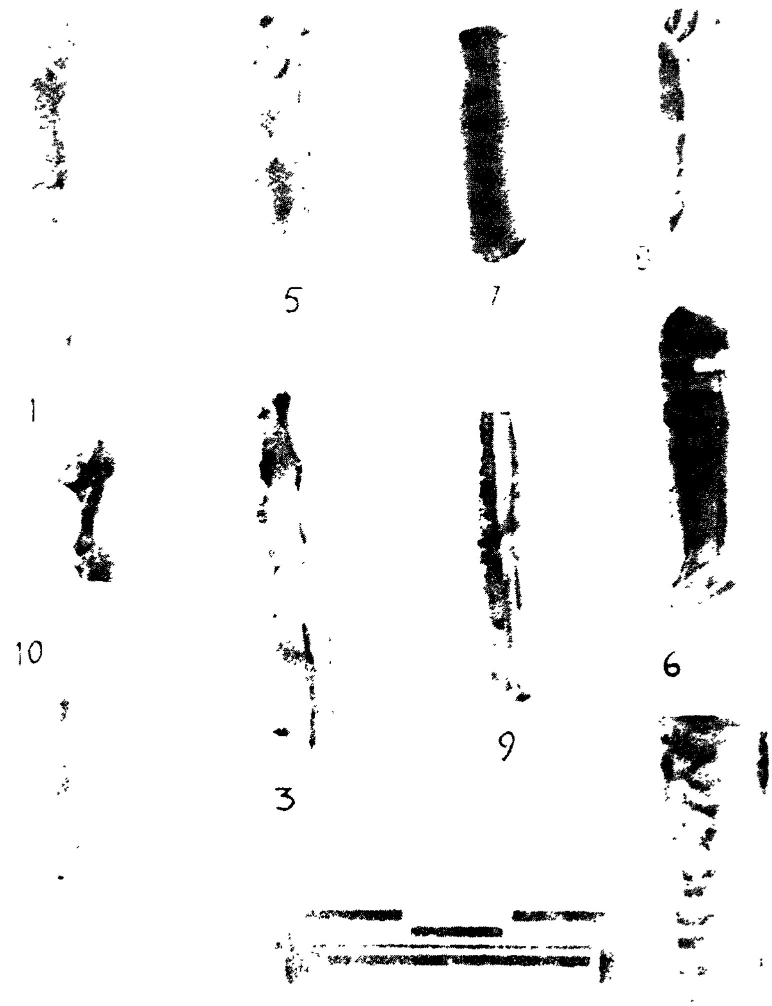
Pl. XLI. Black-and-red ware. *See p. 245*



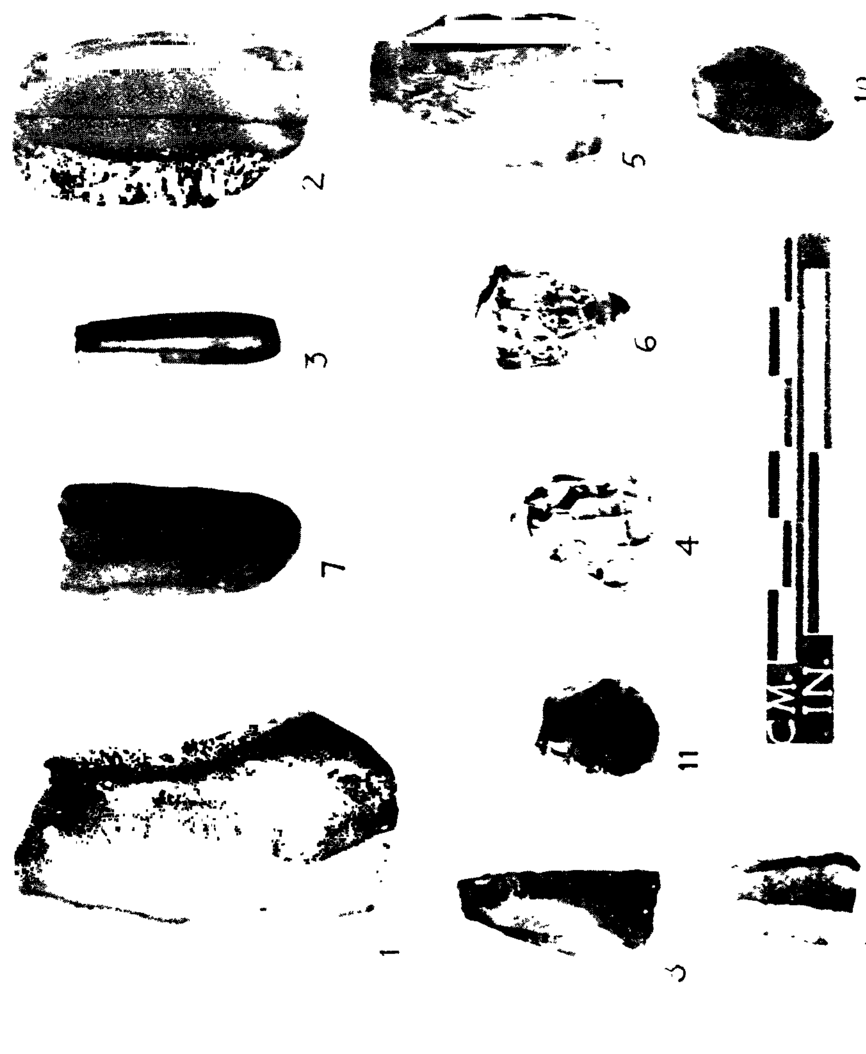
Pl. XLII. Chert blades. *See p. 255*



Pl. XLIII. Chert blades. *See p. 259*



Pl. XLIV. Chalcedony and carnelian blades. *See p. 263*



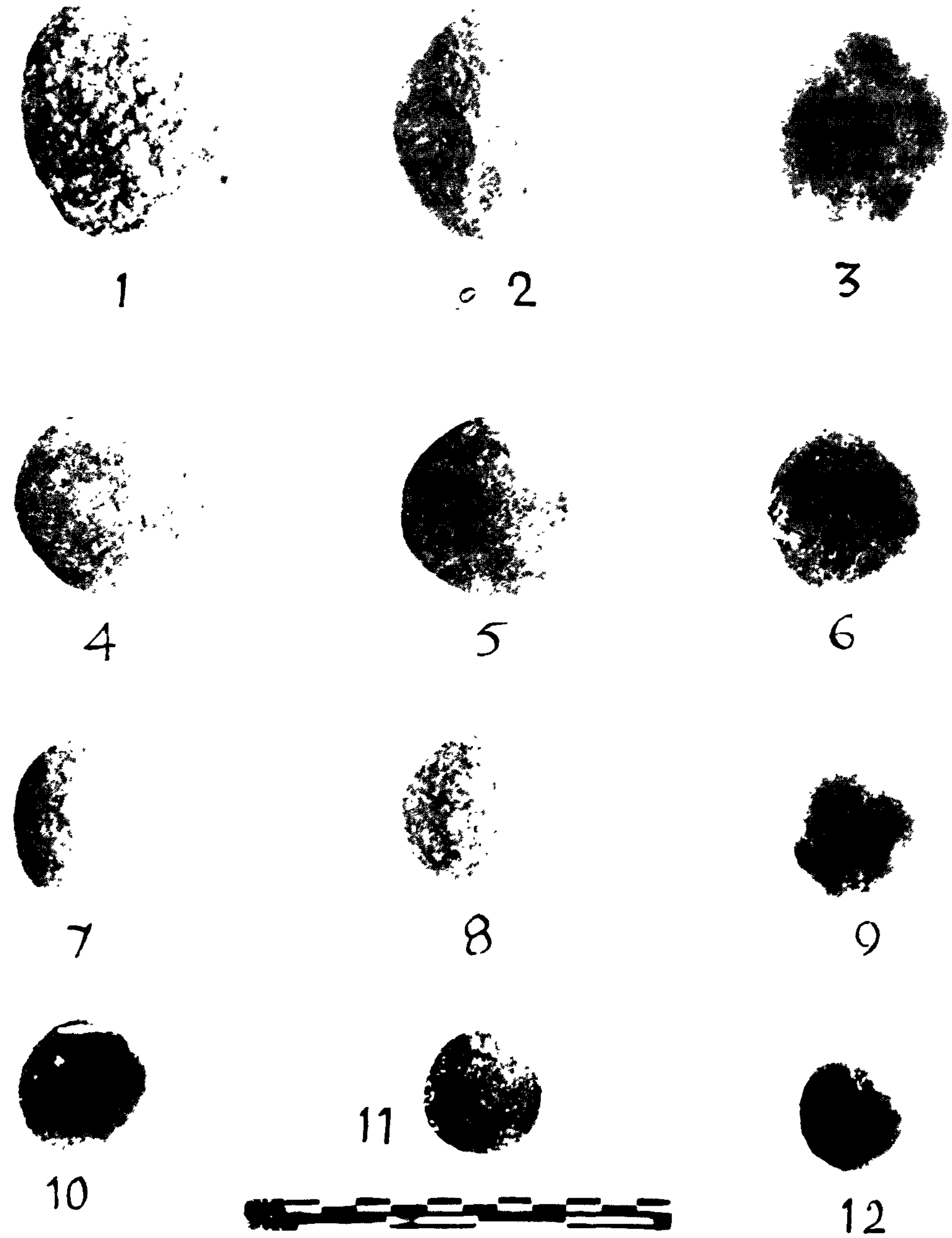
Pl. XLV. Cores. *See p. 265*



Pl. XLVI. Copper hoard. *See p. 266*



Pl. XLVII. Copper objects. *See p. 269*



Pl. L. Sling balls. *See p. 266*



A



B



C



D

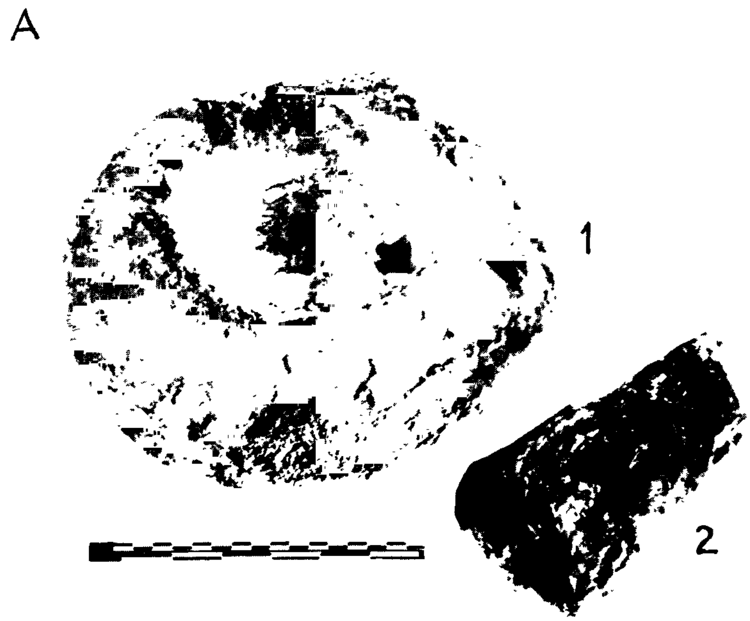


E

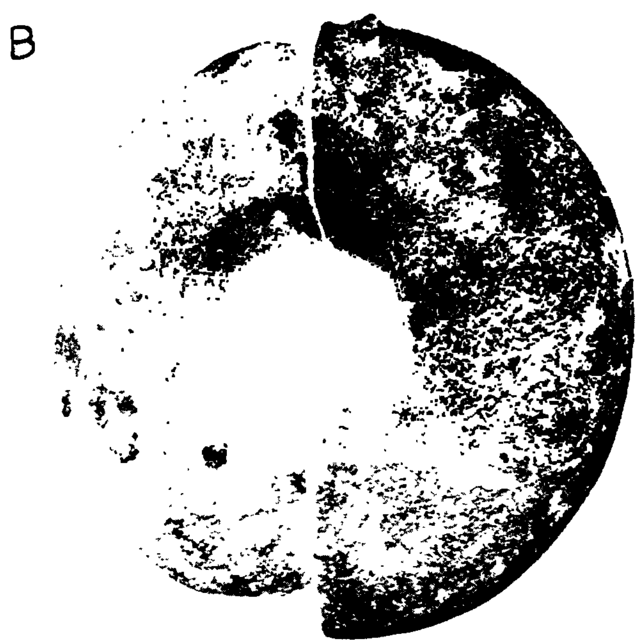
Pl. LI. Querns. *See p. 278*



Pl. LII. Flat Querns. *See p. 278*

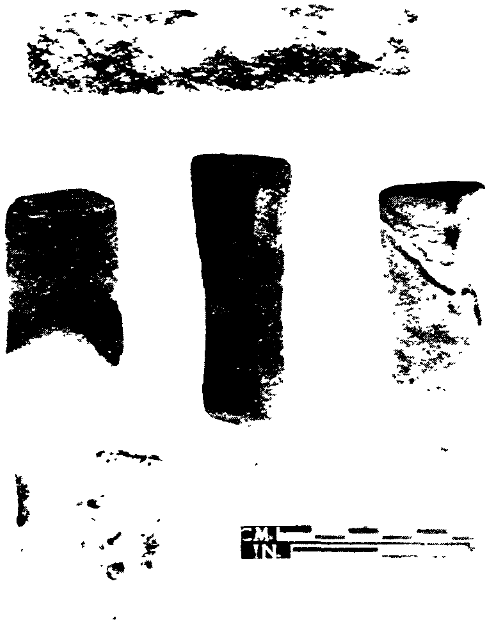


A



B

Pl. LIII. A, round quern; B, mace head. *See p. 279*



A



B

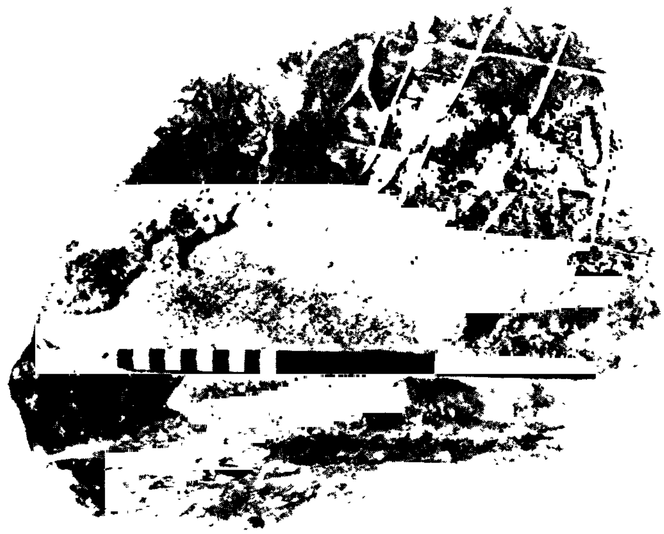


C



D

Pl. LIV. A , sharpener; B,mullers; and C &D, whet-stones. *See pp. 279-281*



A



B

Pl. LV. Miscellaneous stone objects. *See p. 251*



A

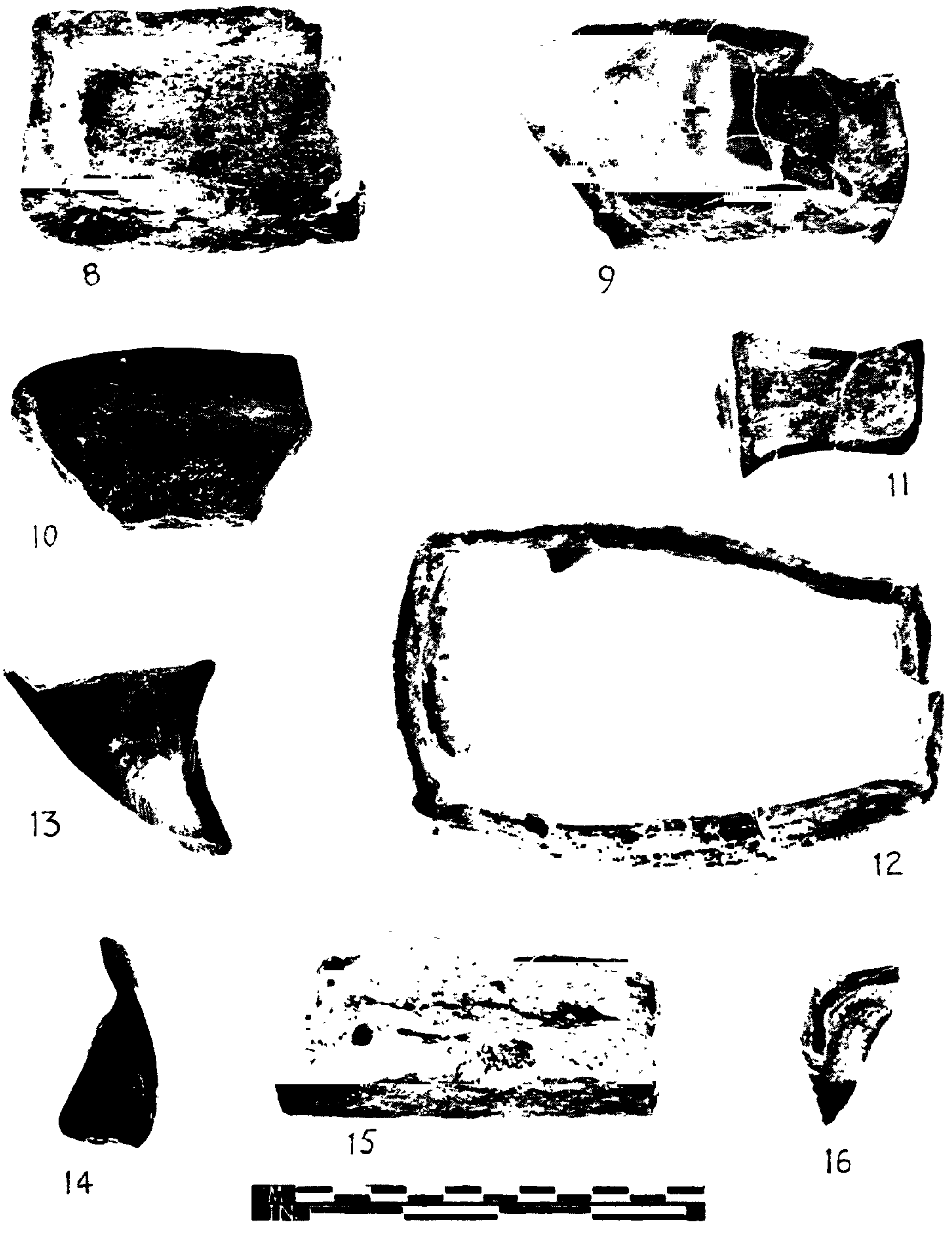


B

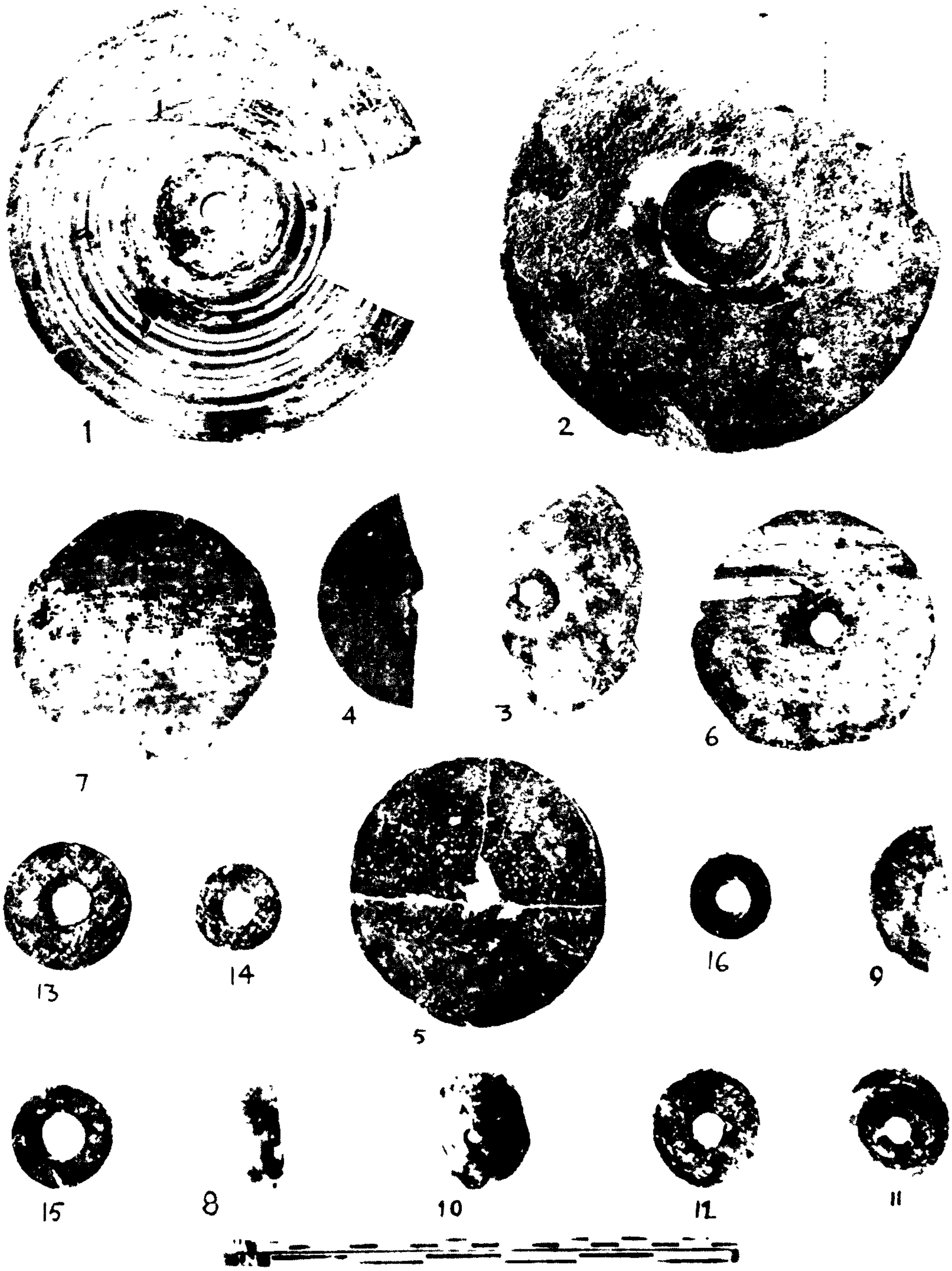
Pl. LVI. Terracotta bulls. *See p. 284*



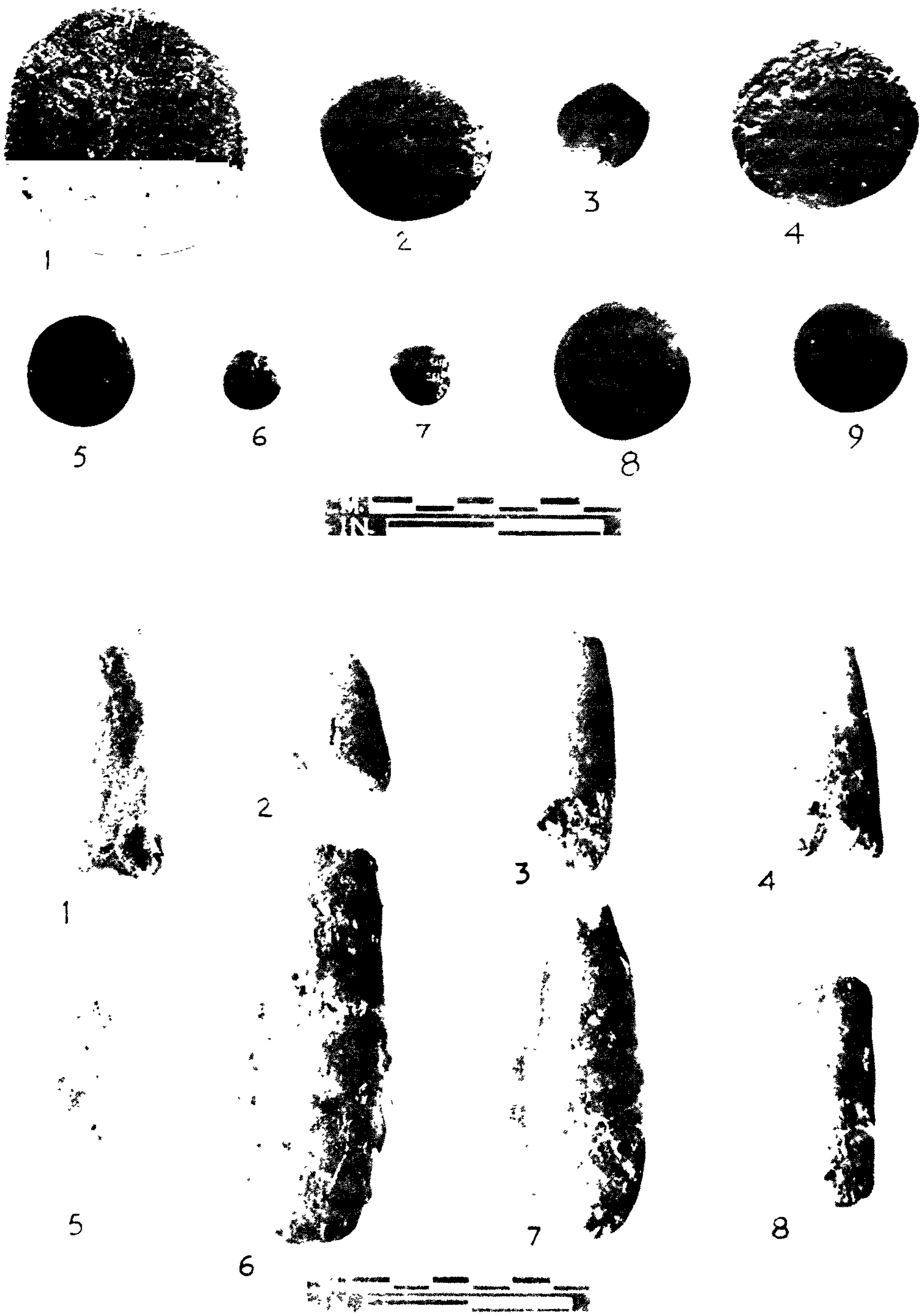
Pl. LVII. Terracotta carts and frames. *See p. 285*



Pl. LVIII. Terracotta carts and frames. *See p. 285*



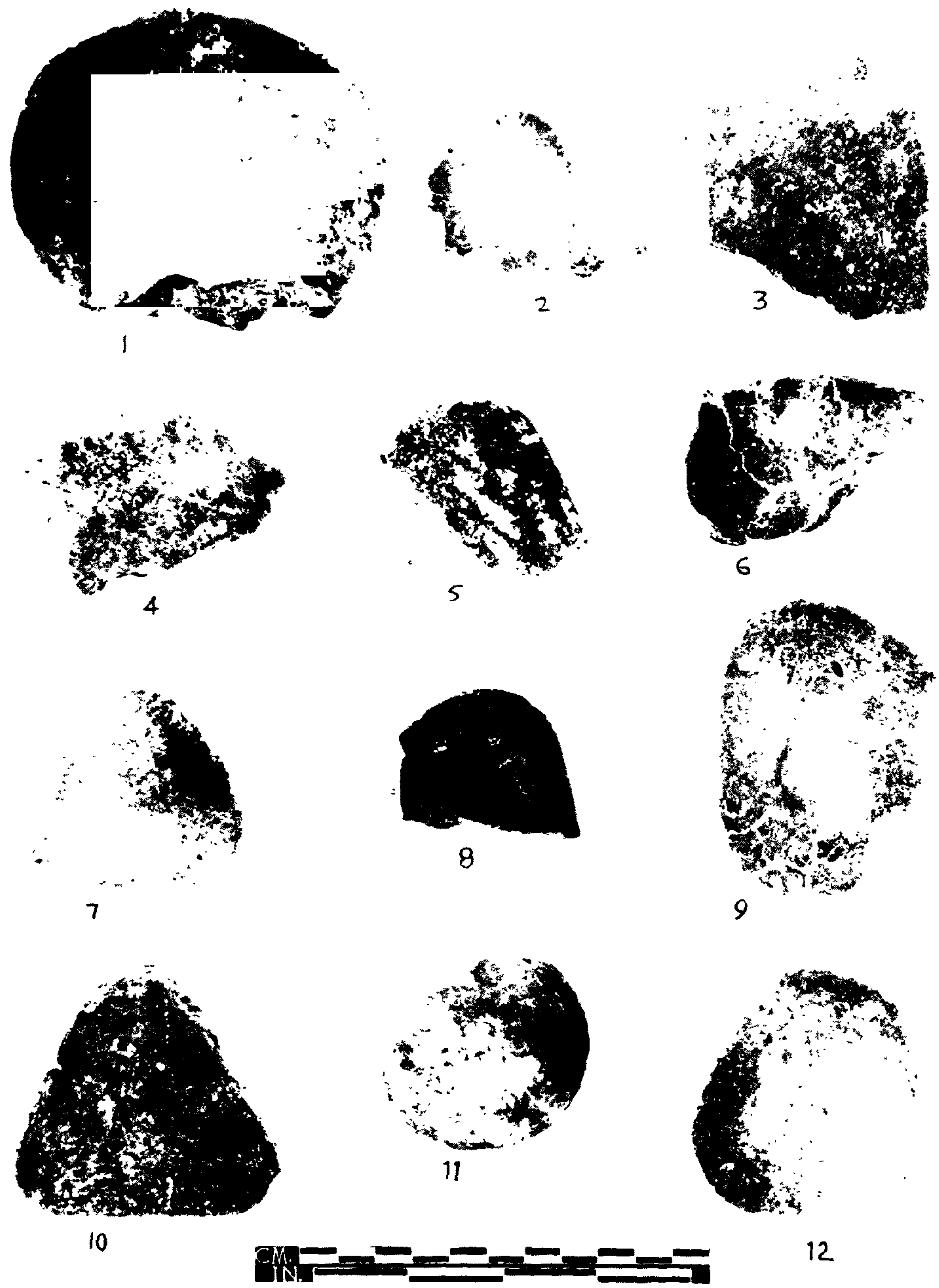
Pl. LIX. Terracotta wheels. *See p. 289*



A

B

Pl. LX. A, Terracotta balls; B, clay *lingas*. *See pp. 296-297*



Pl. LXI. Terracotta cakes.*See p. 299*

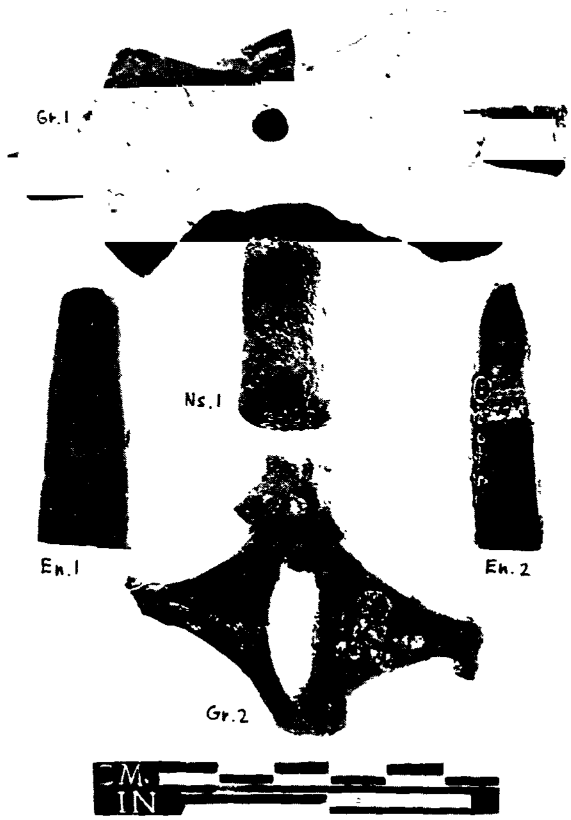


A



B

Pl. LXII. Terracotta: A, votive tank; B, spools. *See pp. 300-303*

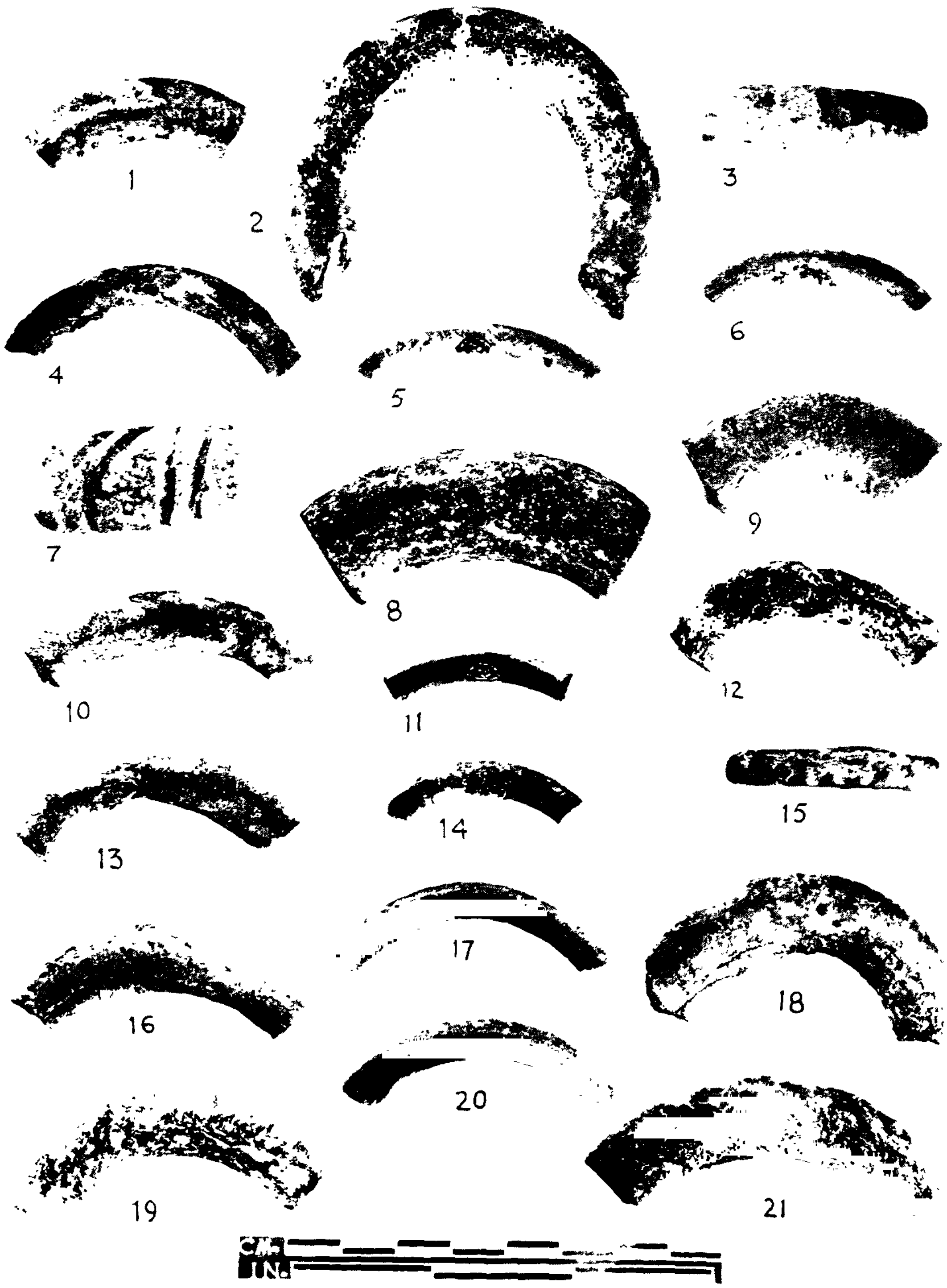


A

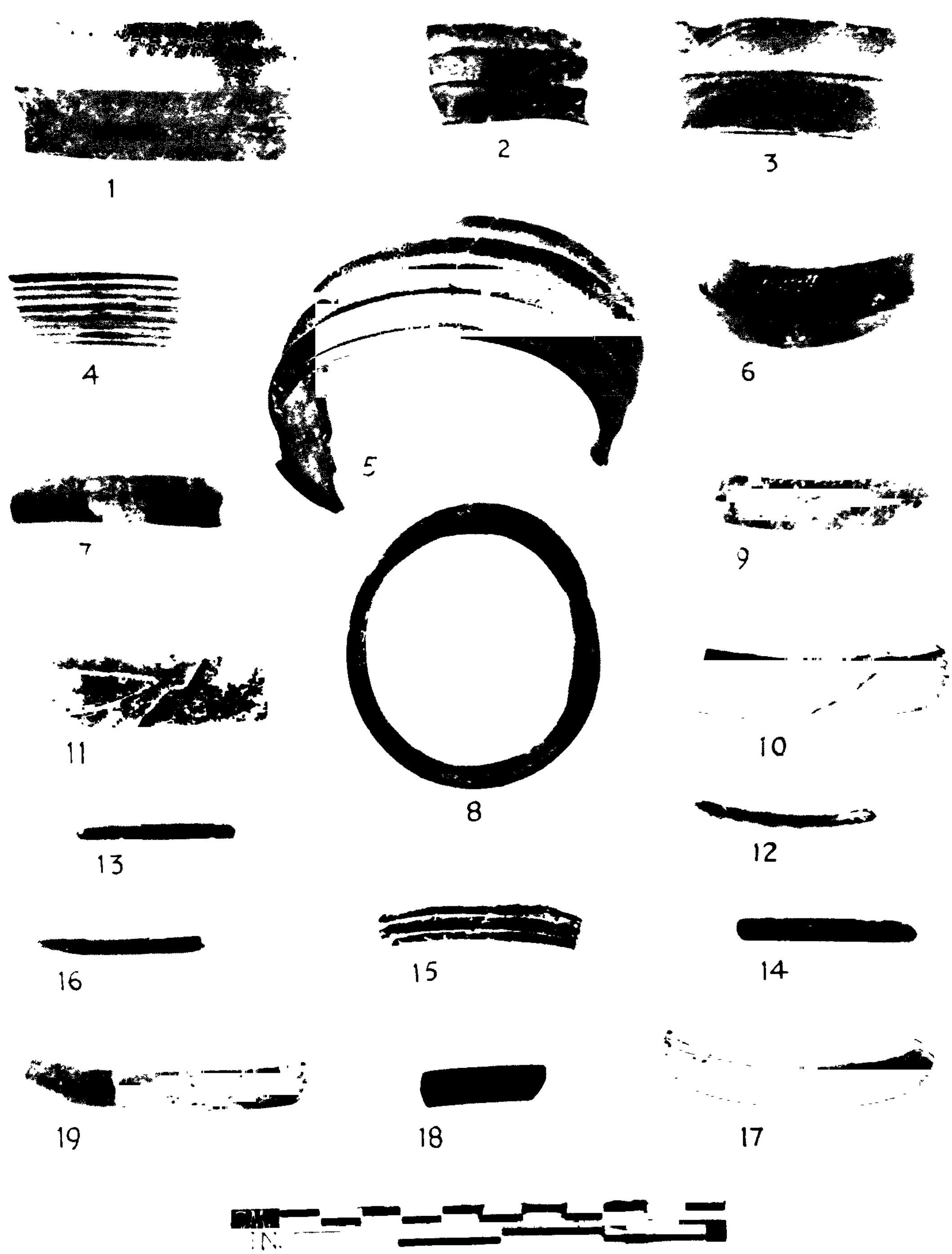


B

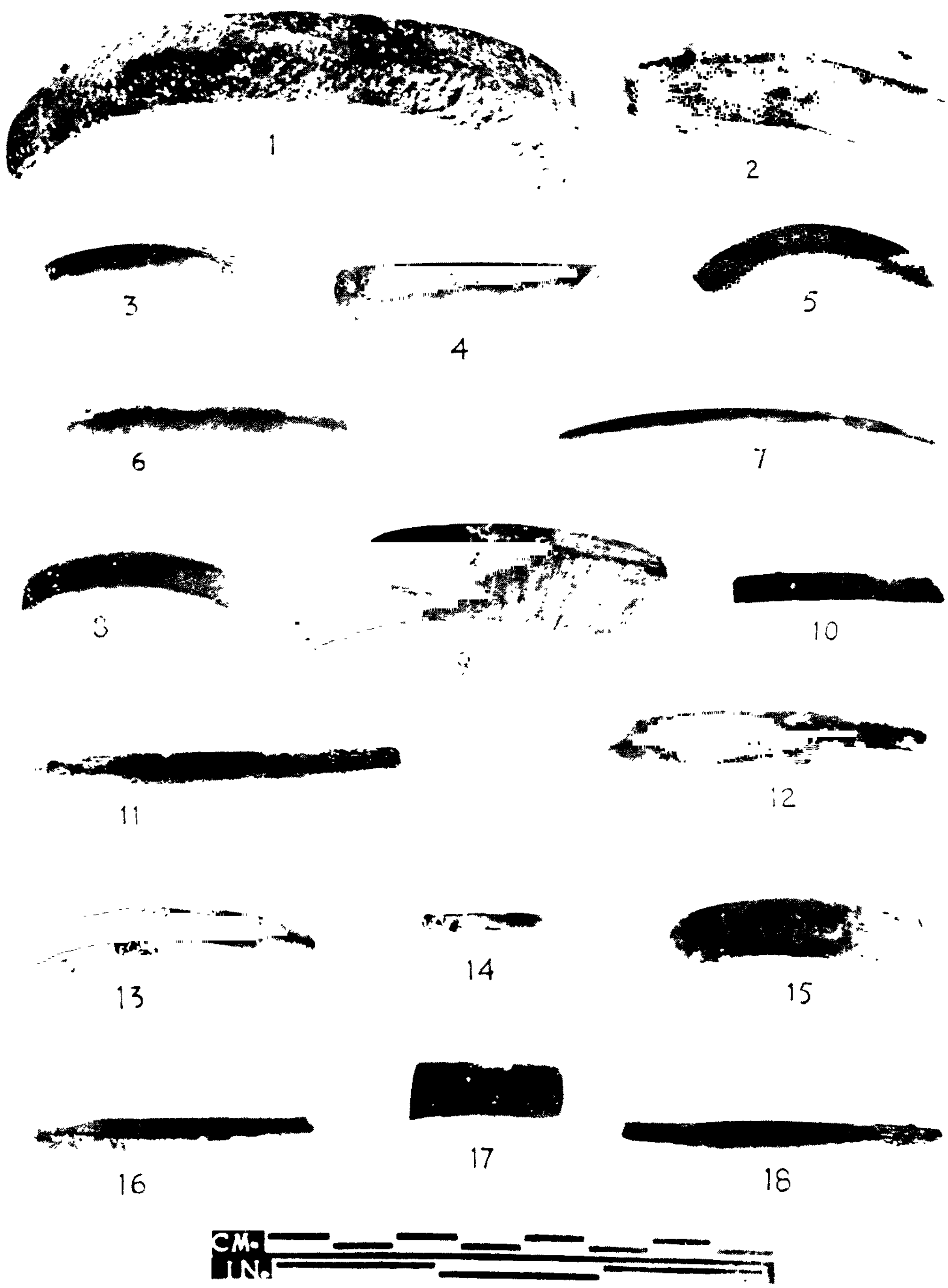
Pl. LXIII. Terracotta: A, engraver; and B, gratings and tawa.
See pp. 303-304



Pl. LXIV. Terracotta bangles. *See p. 305*



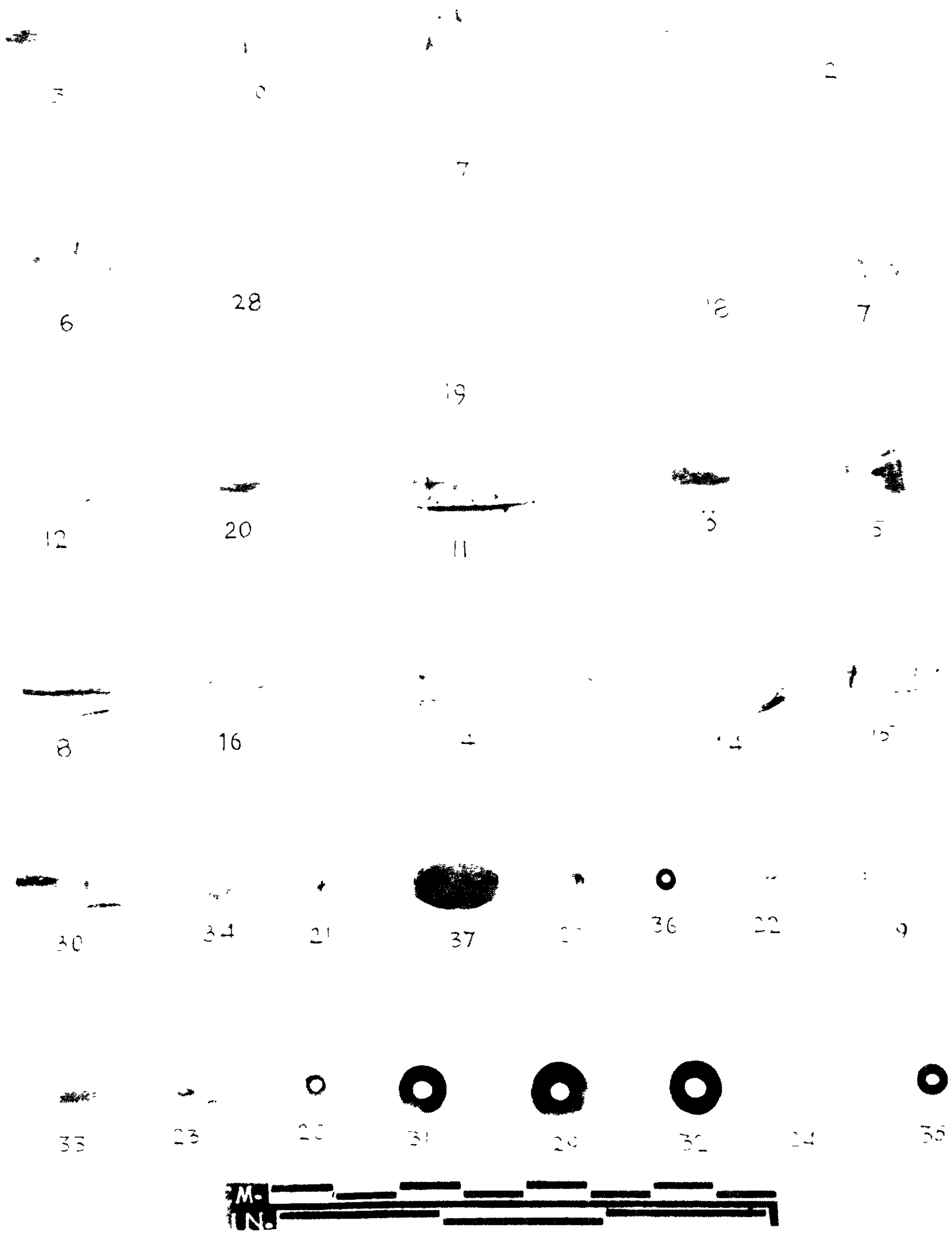
Pl. LXV. Shell bangles. *See p. 308*



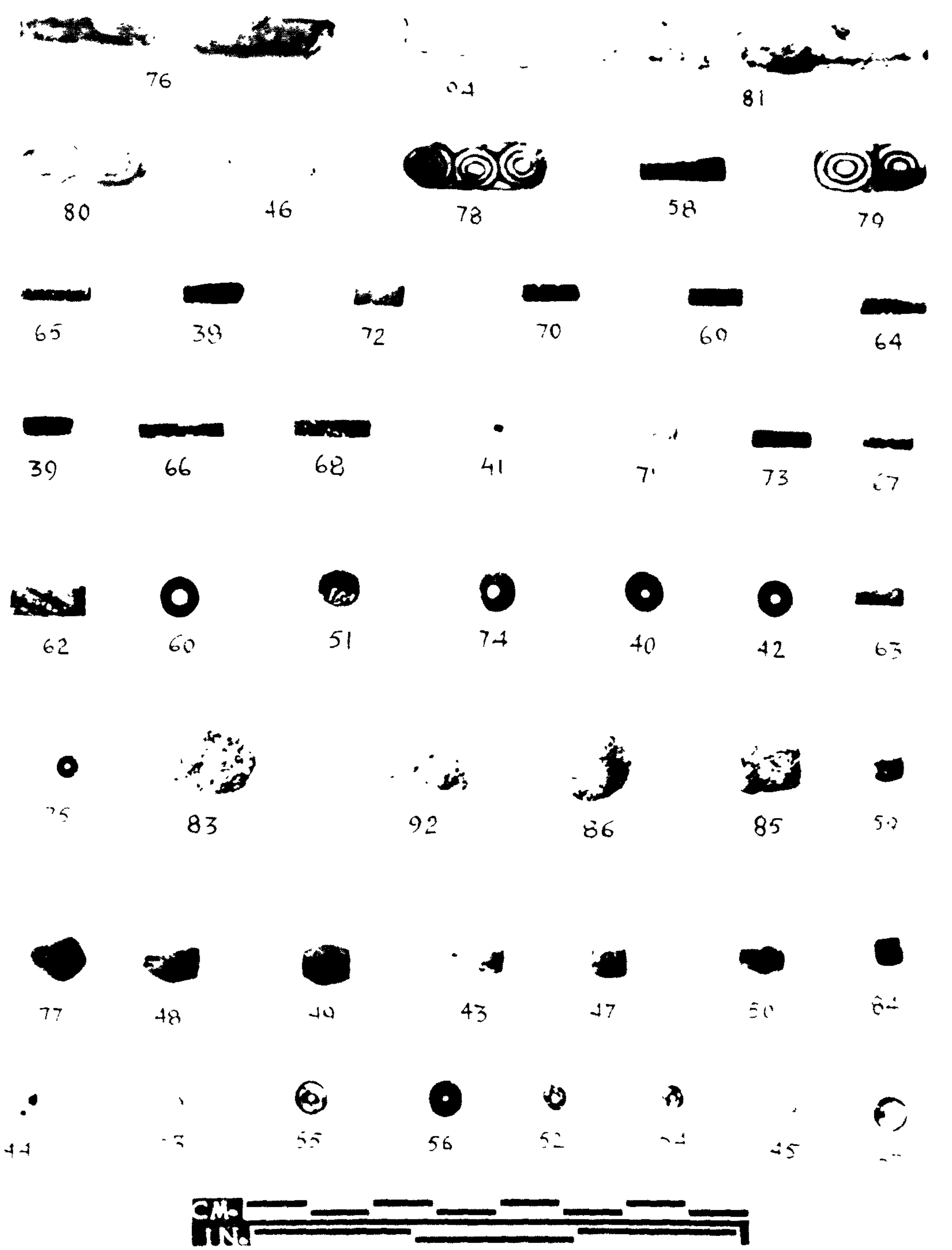
Pl. LXVI. Shell bangles. *See p. 309*



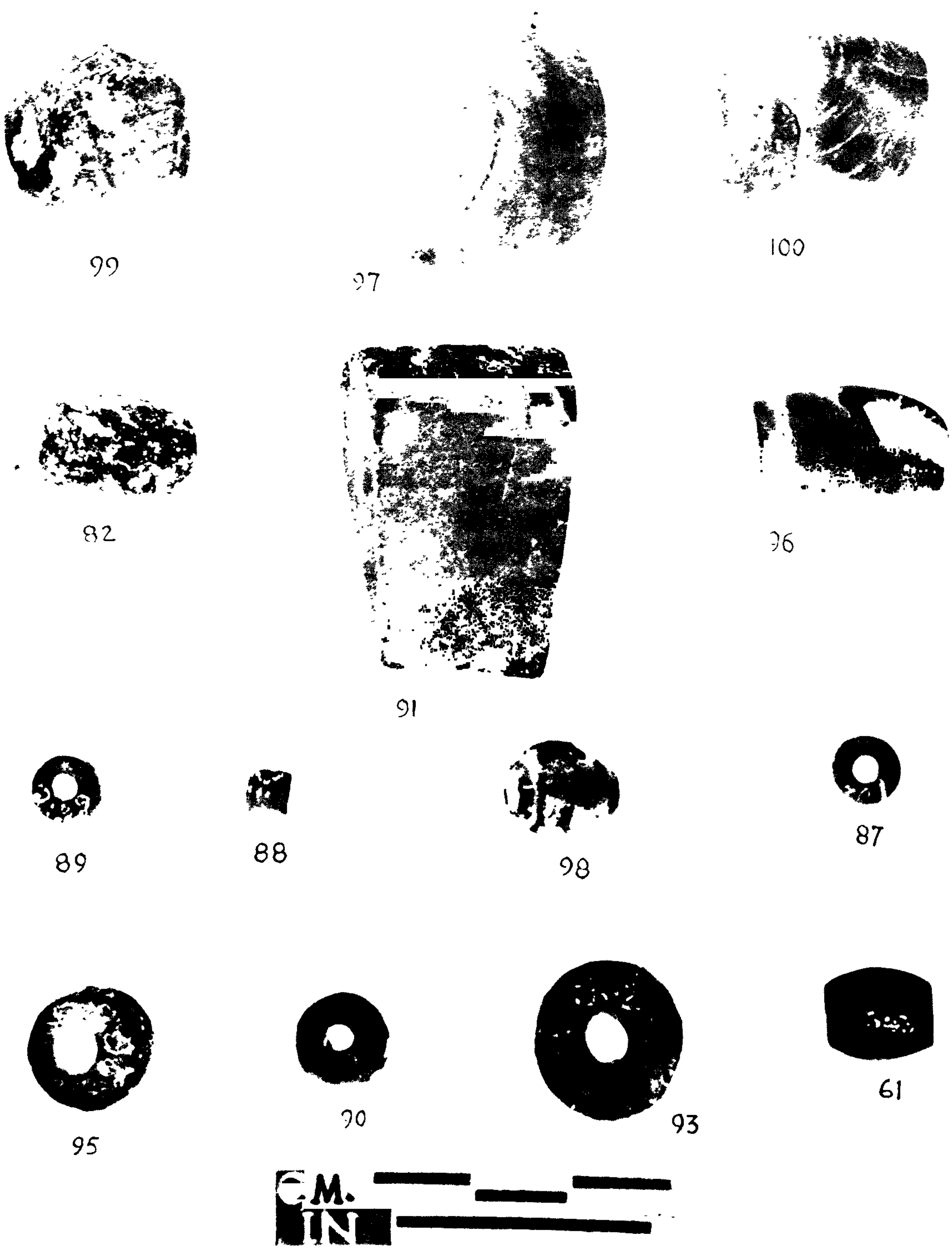
Pl. LXVII. Steatite bead hoards. *See p. 313*



Pl. LXVIII. Beads. *See p. 322*



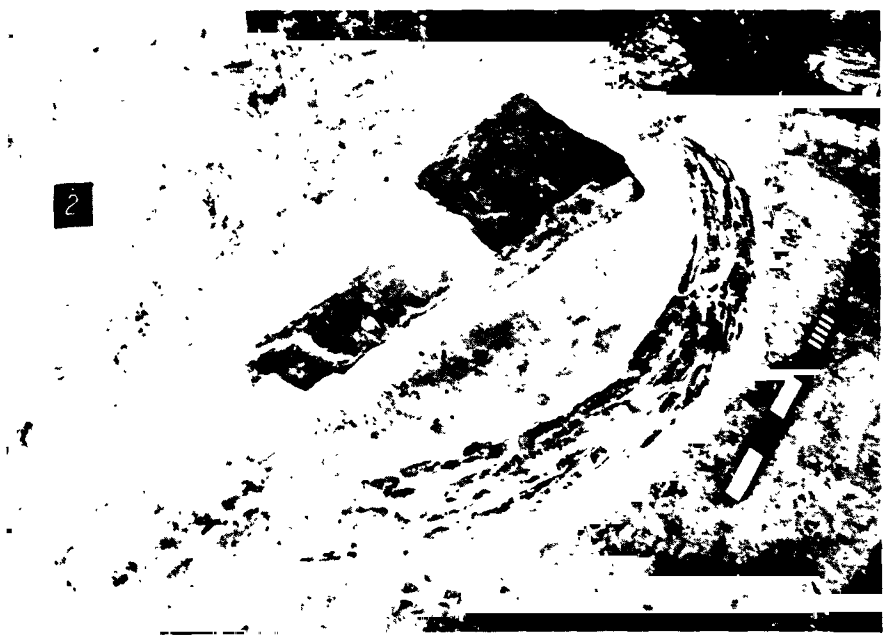
Pl. LXIX. Beads. *See p. 325*



Pl. LXX. Beads. *See p. 327*



A



B

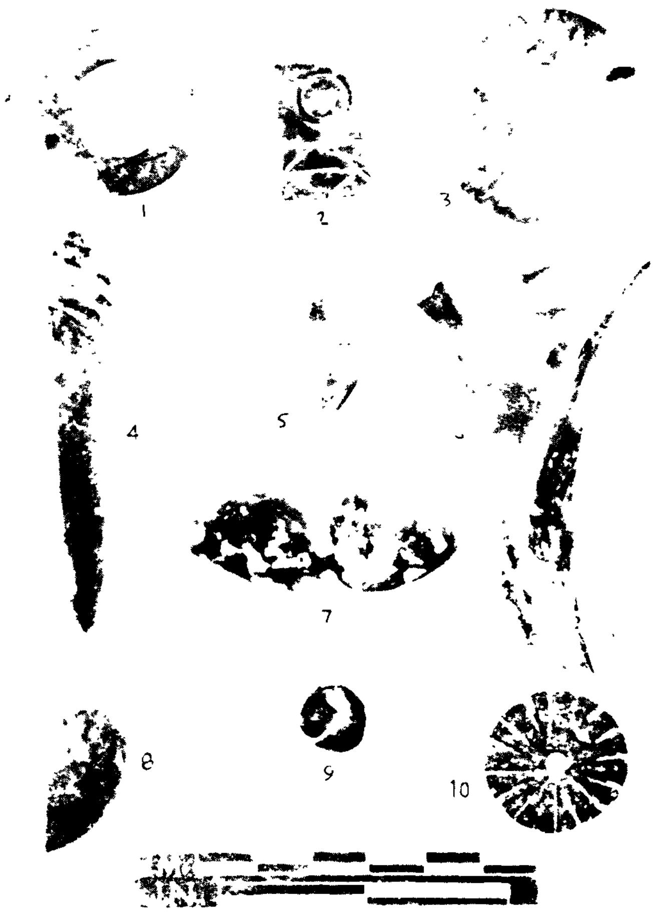
Pl. LXXI. A, weights and measures; B, elephant tusk. *See pp. 338-339*



Pl. LXXII. Ivory and bone objects. *See p. 340*



A

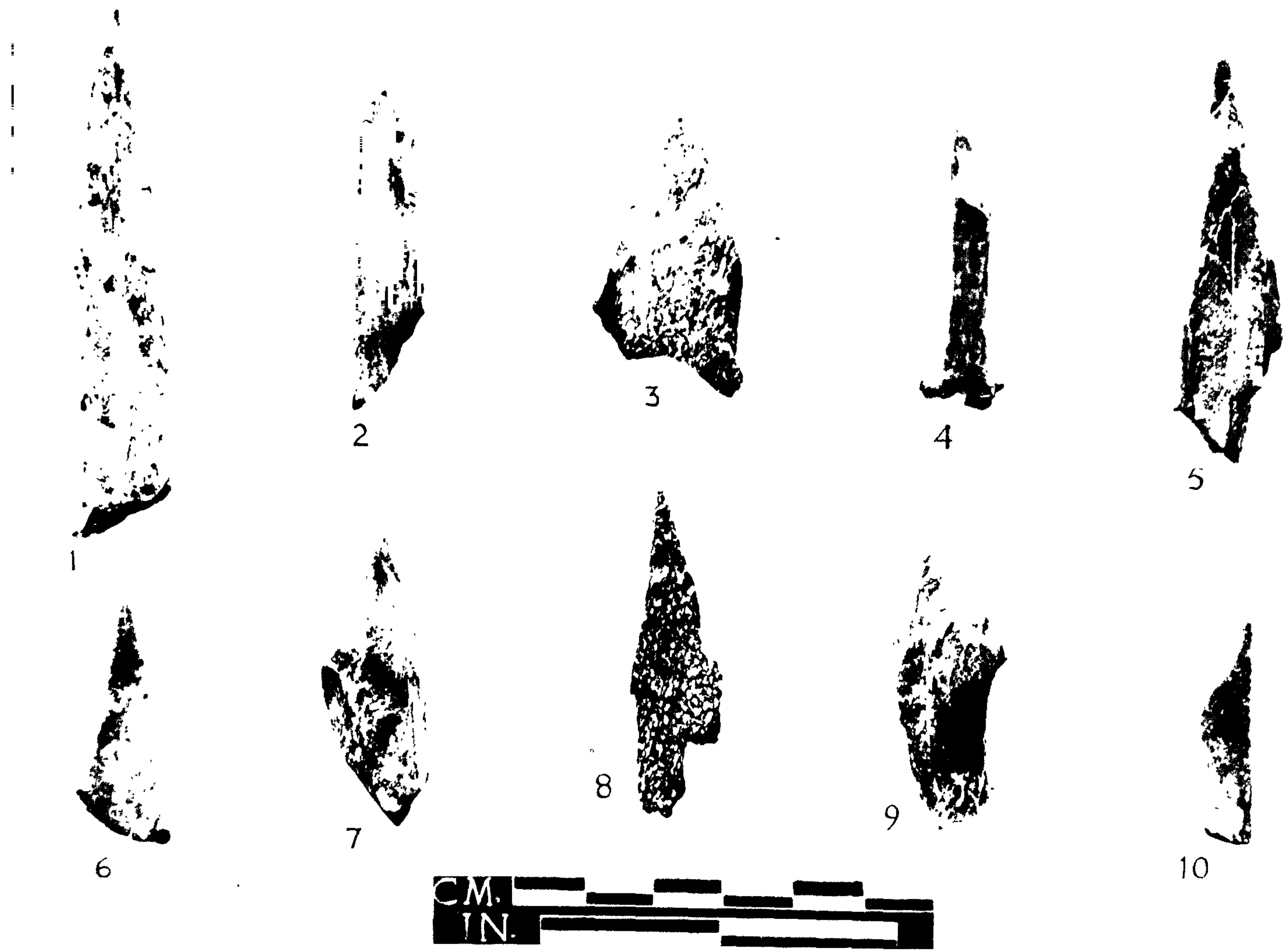


B

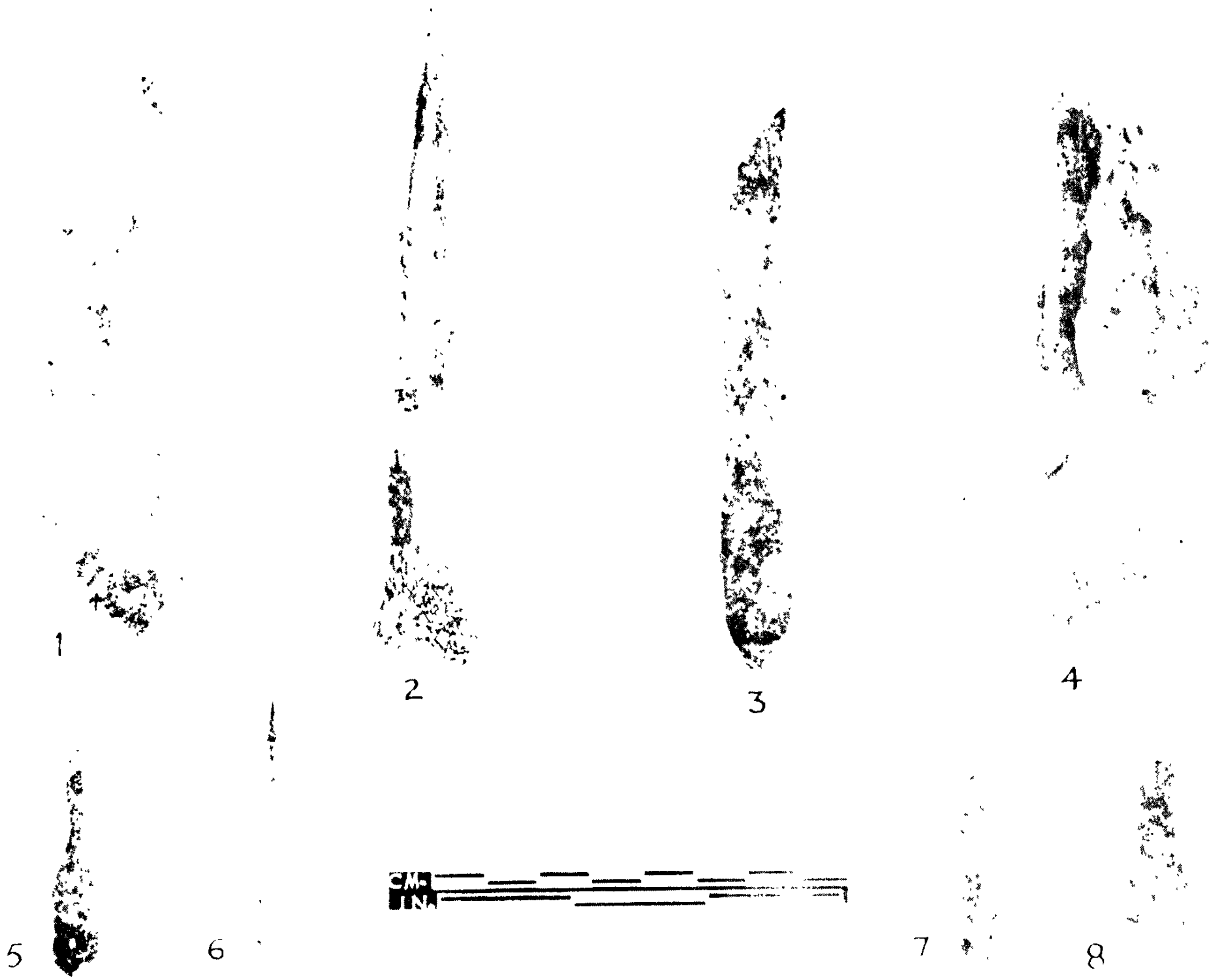
Pl. LXXIII. A, comb and pendent B,
shell objects. *See pp. 341-342*



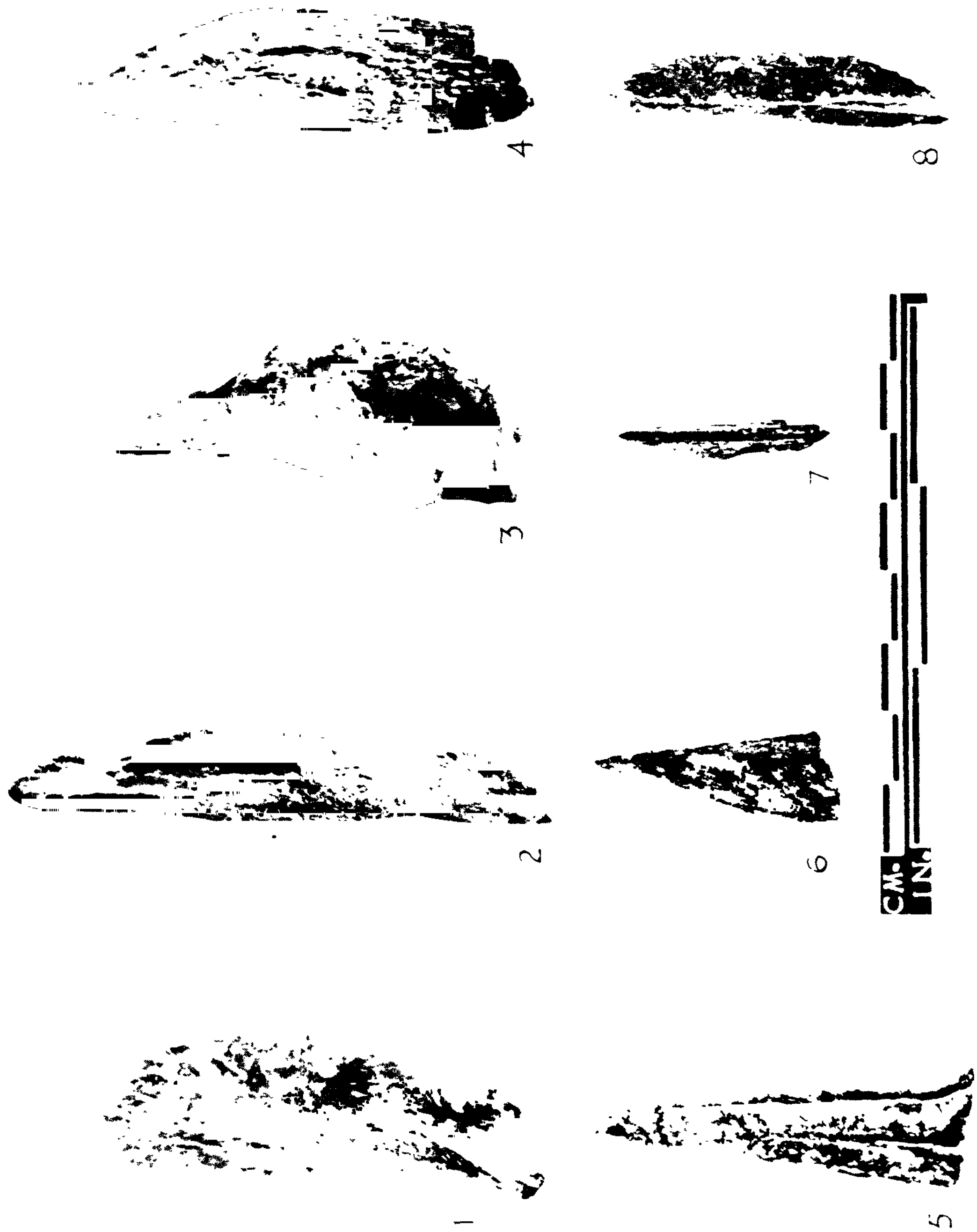
Pl. LXXIV. Bone tools. *See pp. 347, 352, 354*



Pl. LXXV. Bone tools. *See pp. 347, 349, 351-352,354-355*



Pl. LXXVI. Bone tools. *See pp. 349, 351, 353-354, 356*



Pl. LXXVII. Bone tools. *See pp. 349, 351-355*



Pl. LXXVIII. Bone tools. *See pp. 353-356*



2





1



Pl. LXXIX. Seals. *See p. 361*



Pl. LXXX. Painted script. *See p. 361*



Pl. LXXXI. Graffiti. *See p. 362*



Pl. LXXXII. Graffiti. *See p. 363*



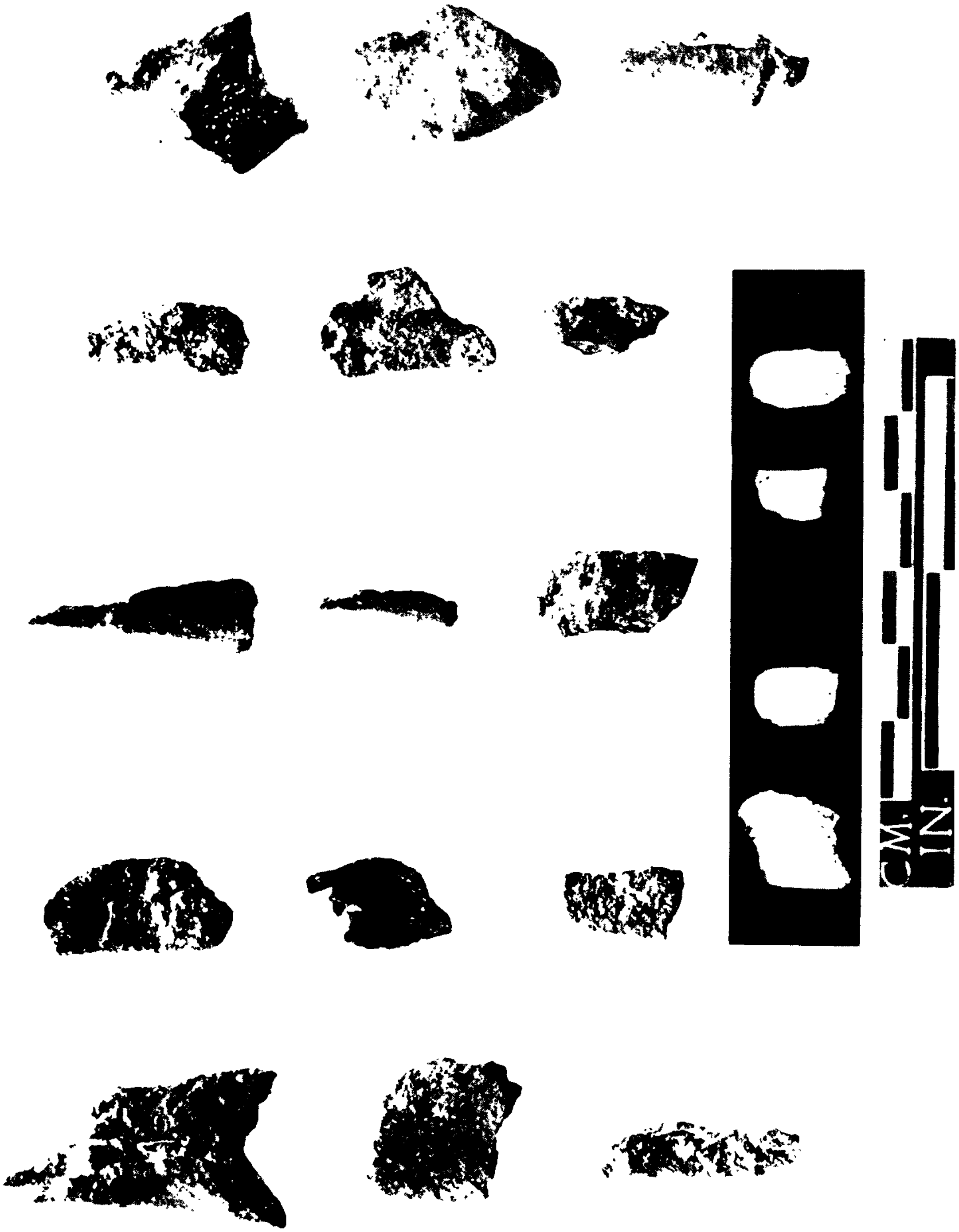
Pl. LXXXIII. General view of burials. *See p. 365*



Pl. LXXXIV. Burial 1. *See p. 367*



Pl. LXXXV. Burial 1. *See p. 367*



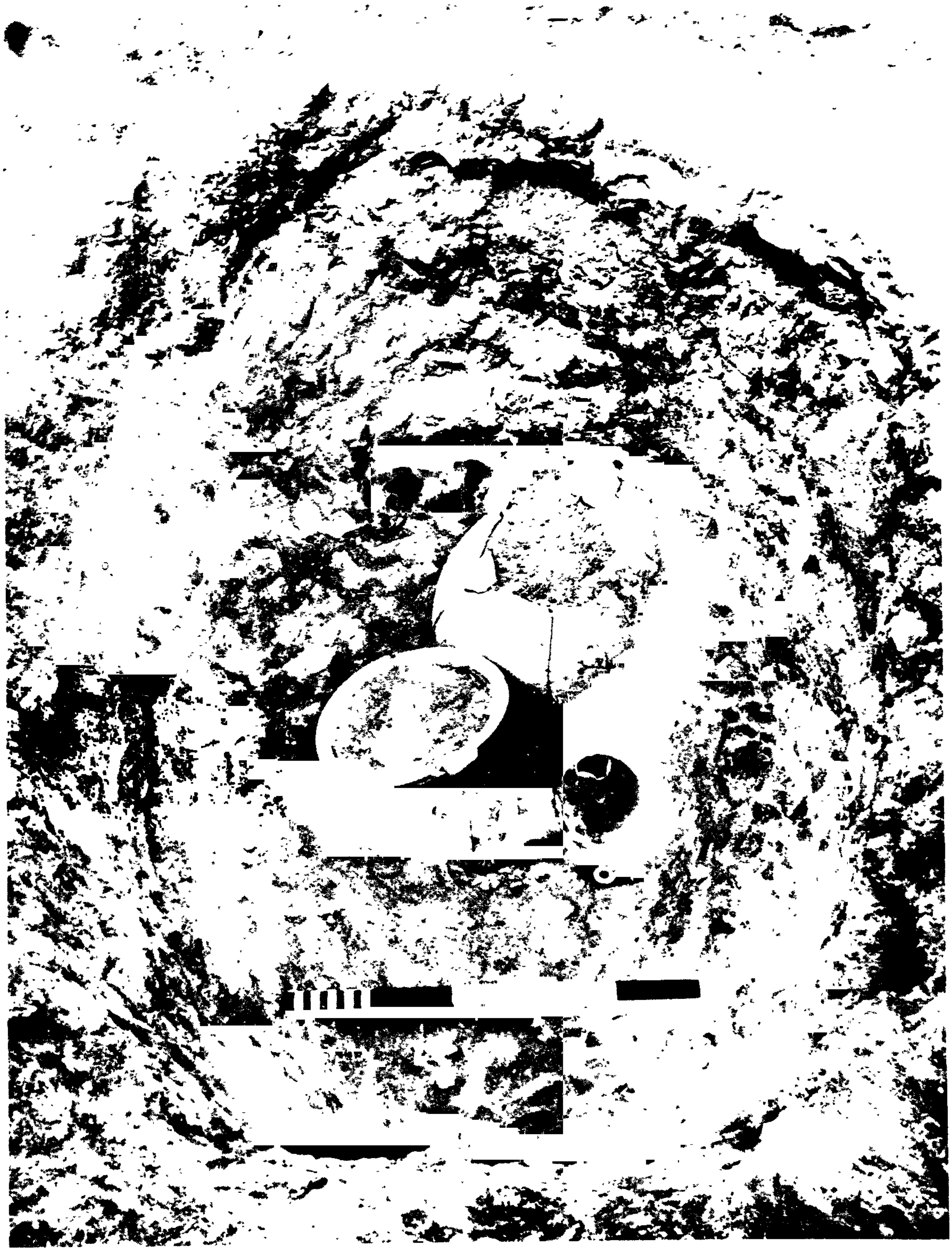
Pl. LXXXVI. Human bones from Burial 1. *See p. 368*



Pl. LXXXVII. Burial 2. *See p. 368*



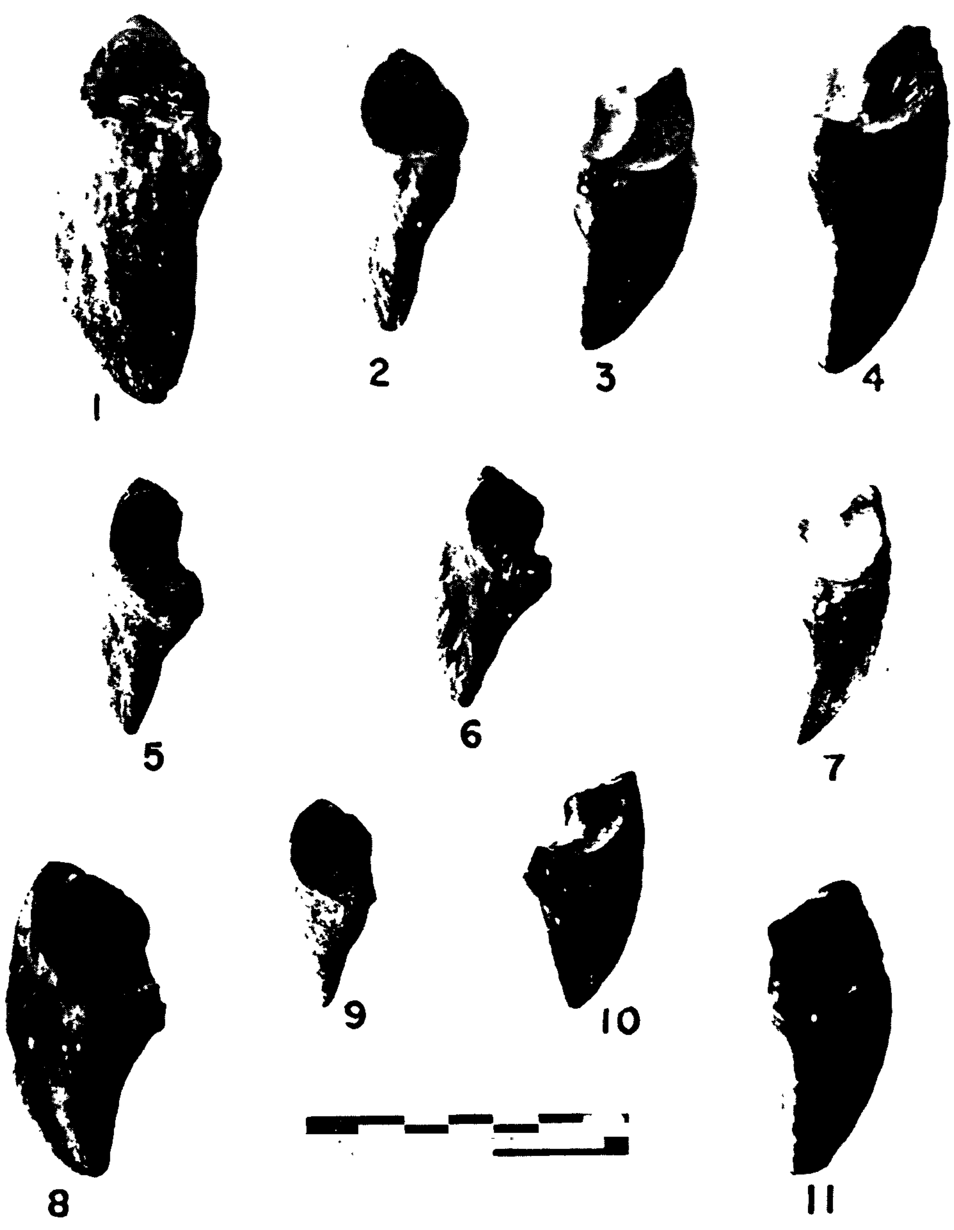
Pl. LXXXVIII. Burial 3 and 4. *See p. 369*



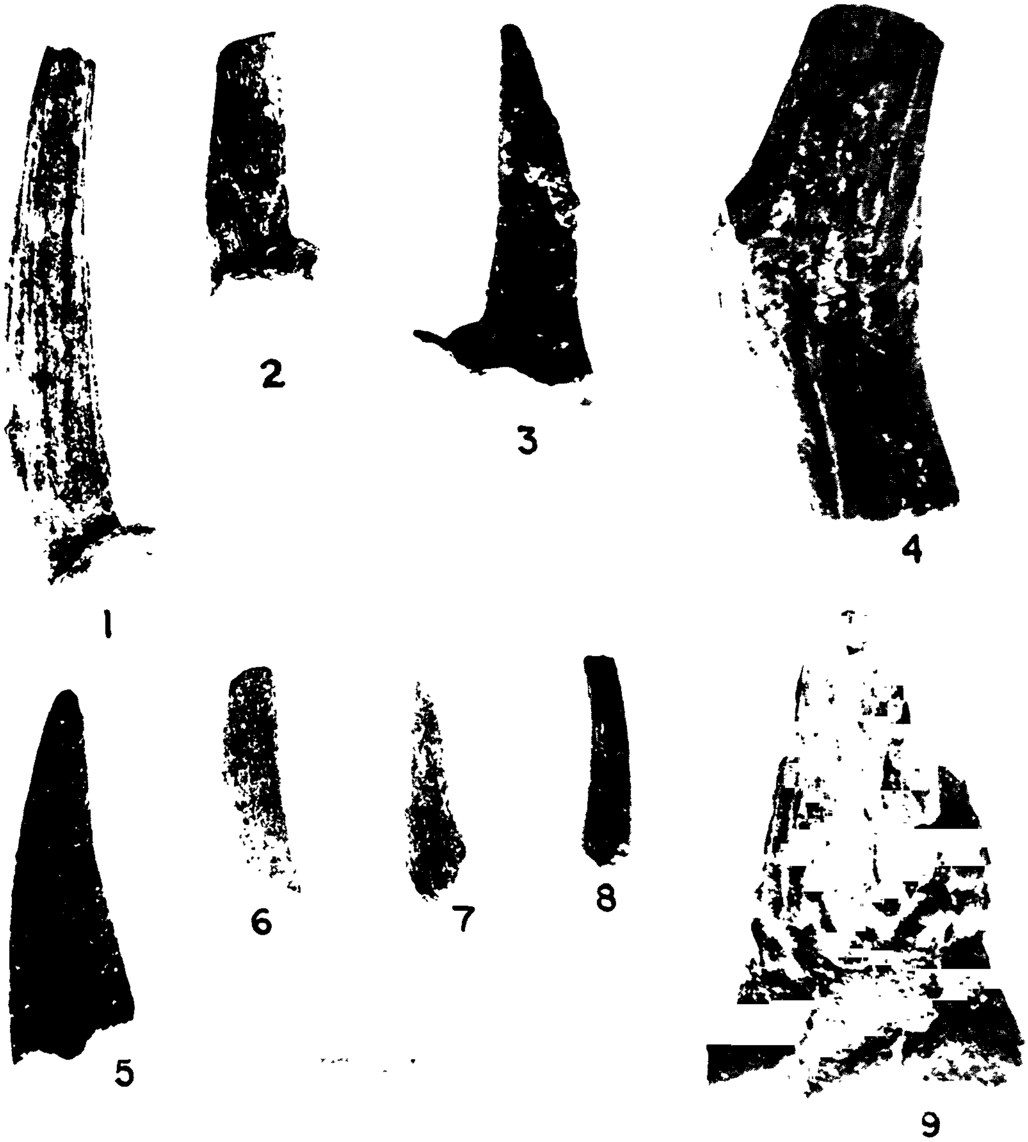
Pl. LXXXIX. Burial 4. *See p. 369*



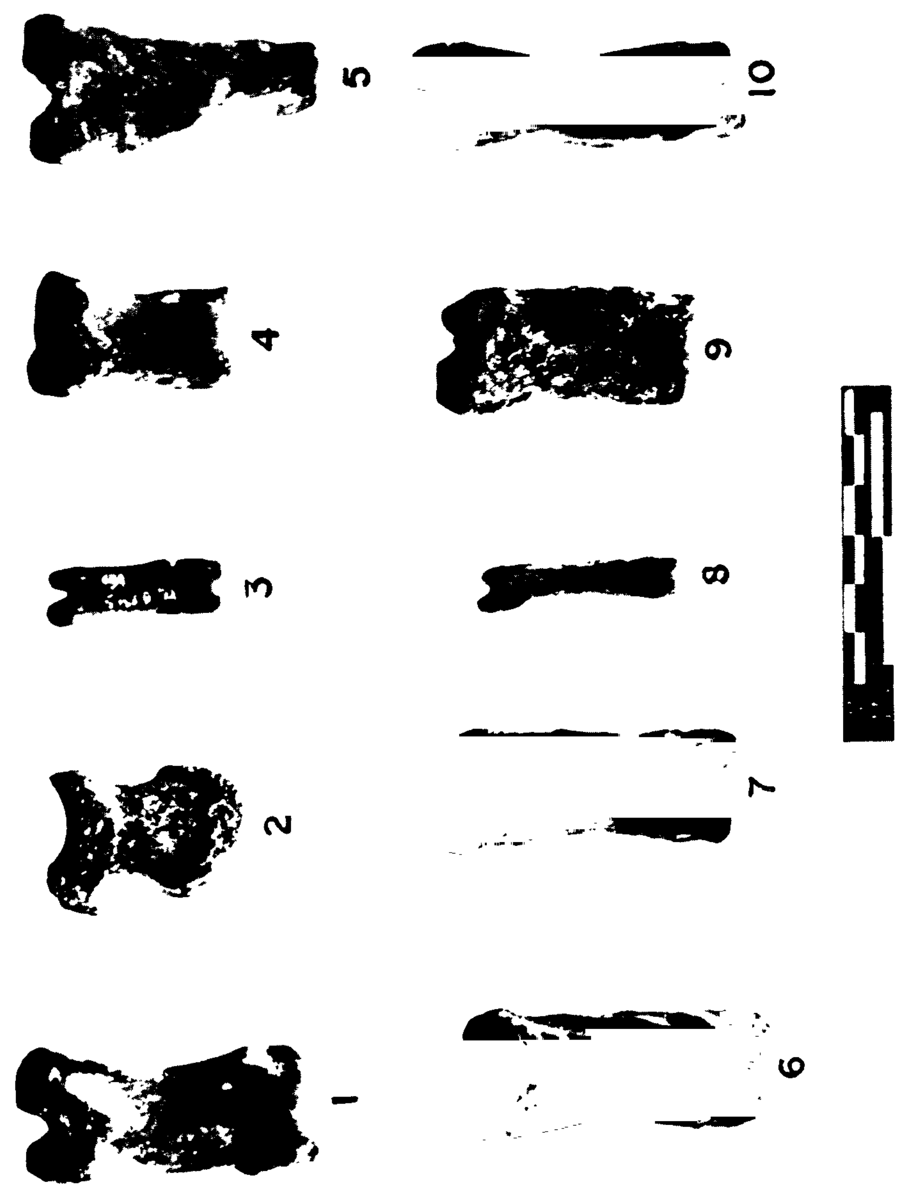
Pl. XC. Animal remains. *See pp. 373, 375&379*



Pl. XCI. Animal remains. *See pp. 375, 377, 379-380.*



Pl. XCII. Animal remains. *See pp. 375, 377&379*



Pl. XCIII. Animal remains. *See pp. 375, 377&379*



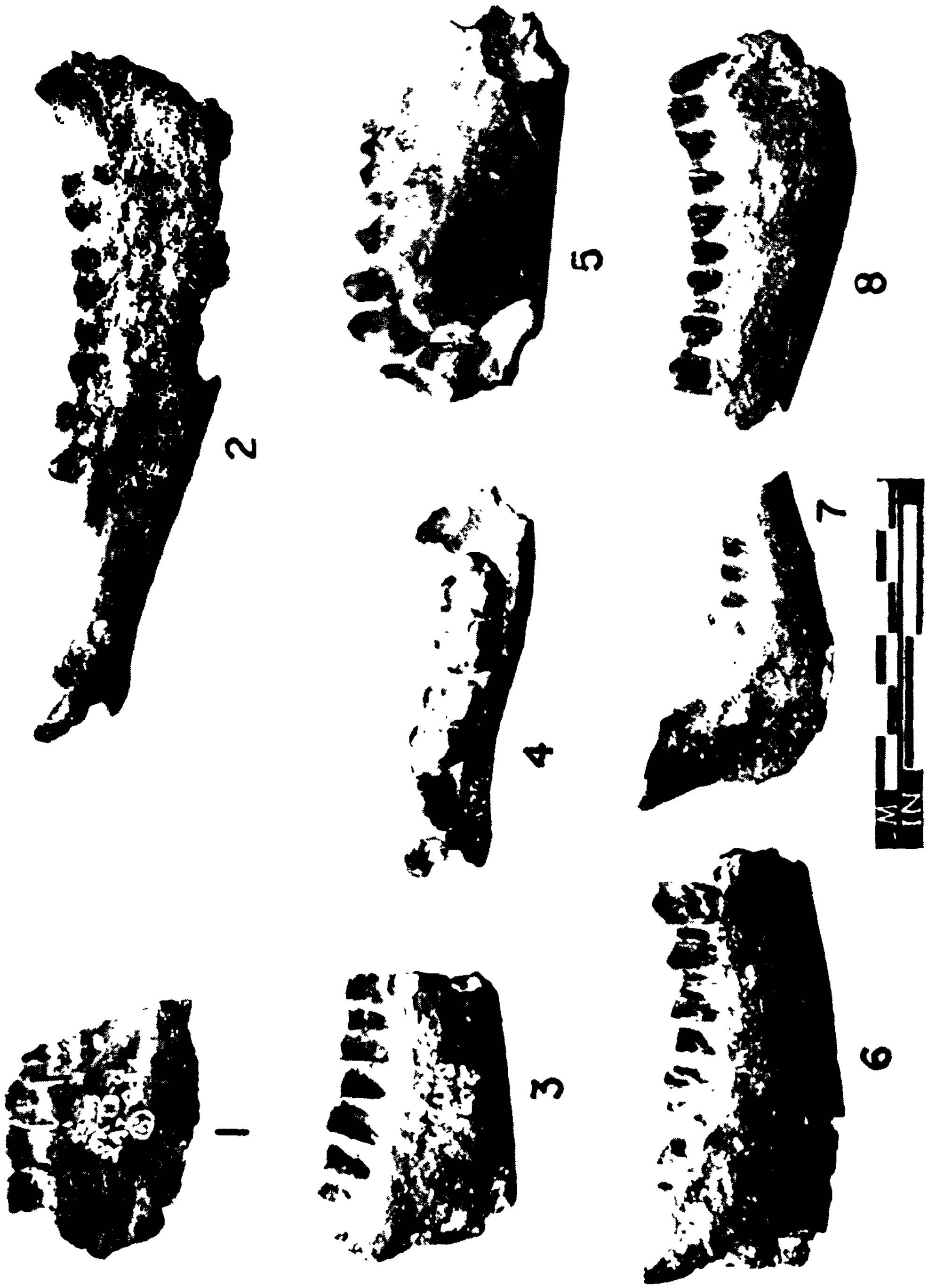
Pl. XCIV. Animal remains. *See pp. 375, 377, 379-380*



Pl. XCV. Animal remains. *See pp. 375&379*



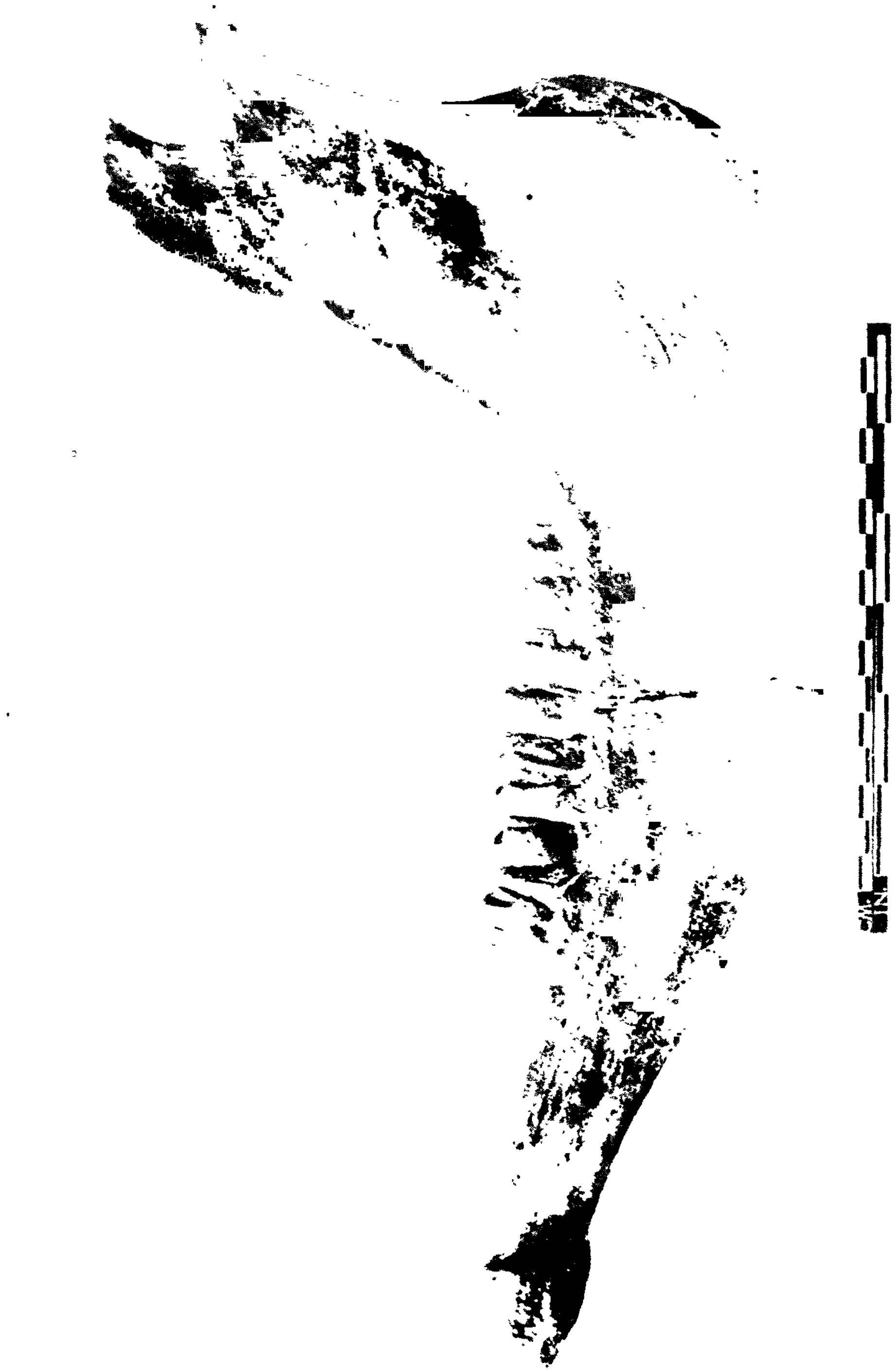
Pl. XCVI. Animal remains. *See pp. 377, 379*



Pl. XCVII. Animal remains. *See pp. 377, 379-380*



Pl. XCVIII. Animal remains. *See pp. 377, 379*



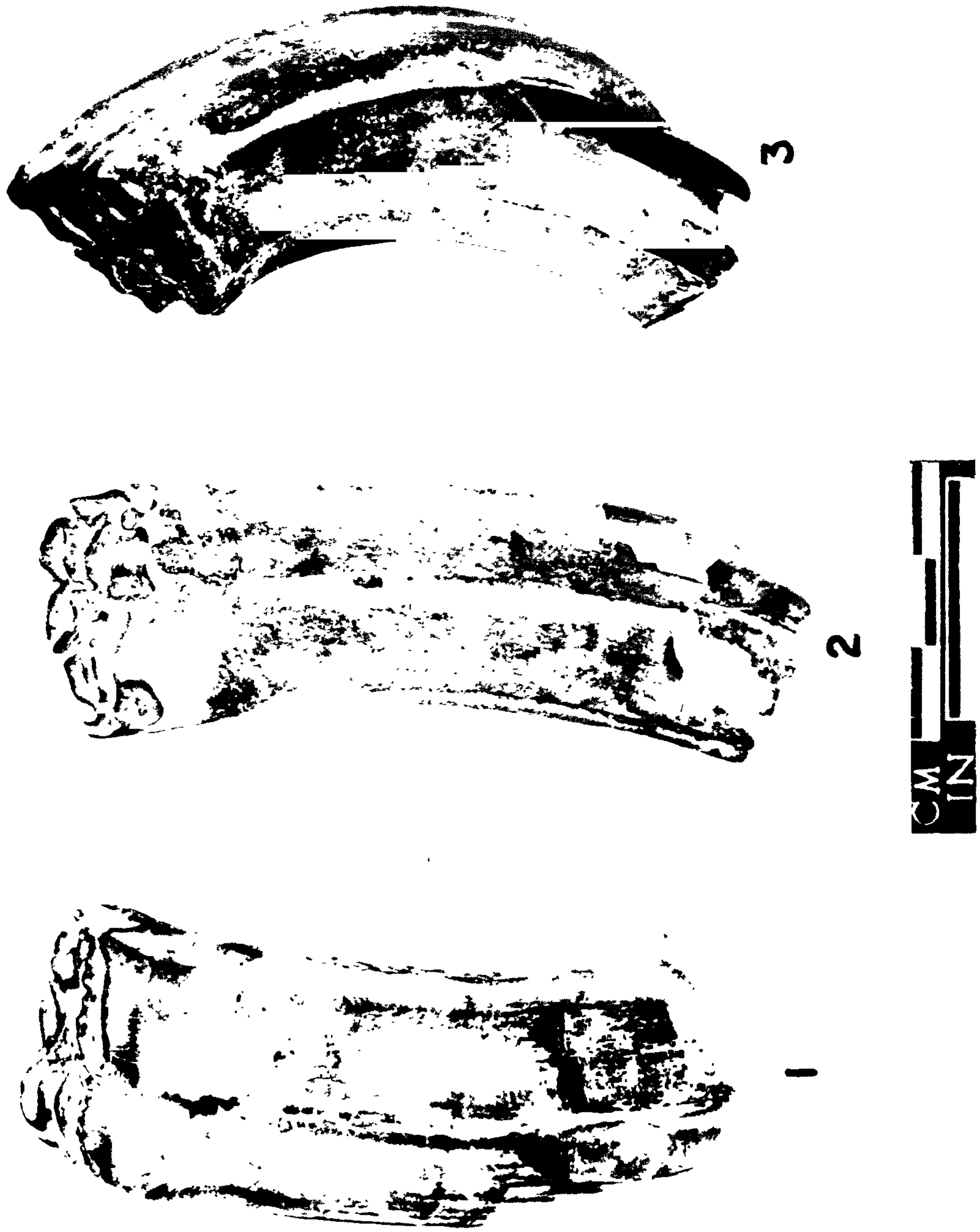
Pl. XCIX. Animal remains. *See p. 380*



Pl. C. Animal remains. *See p. 380*



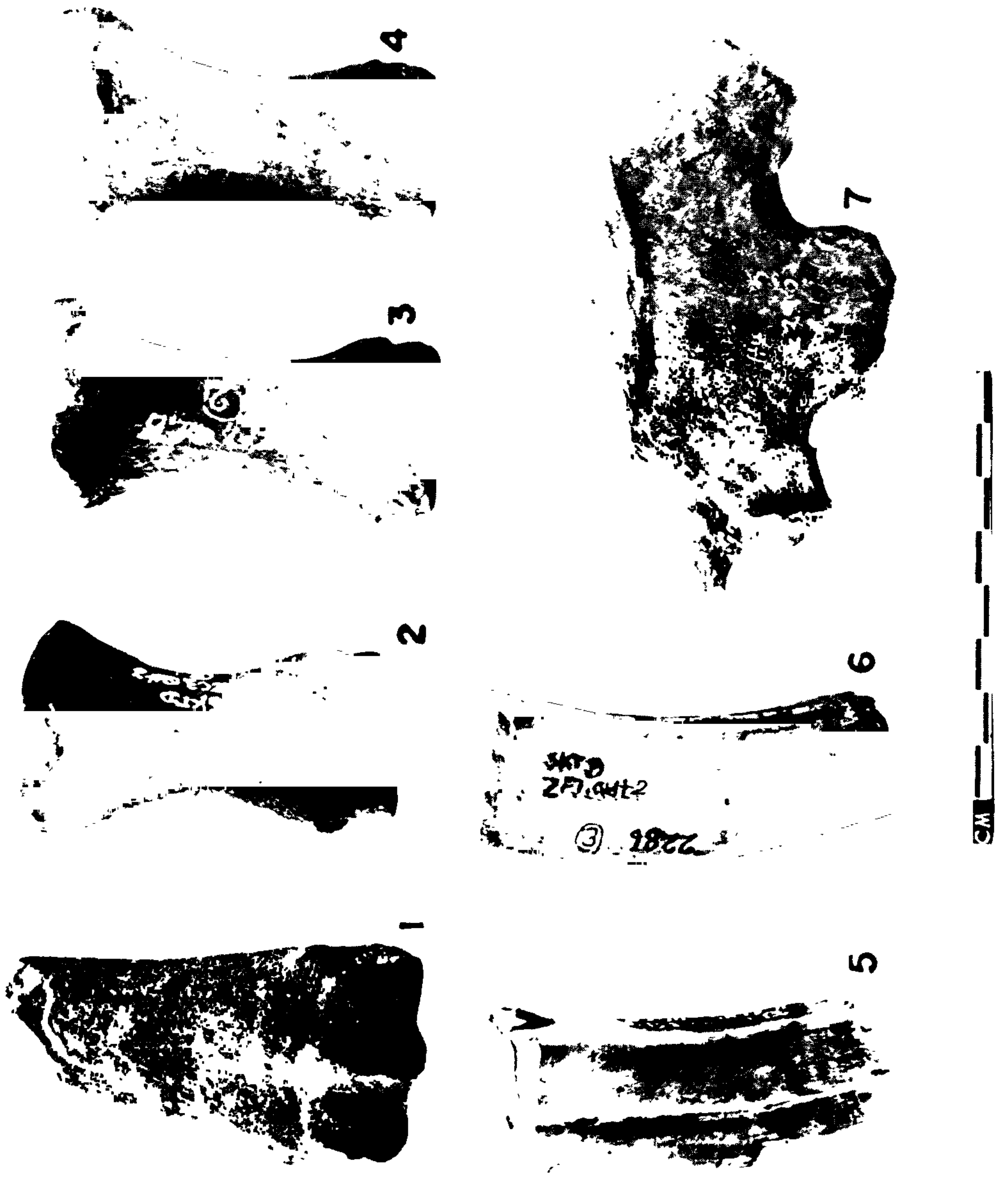
Pl. CI. Animal remains. *See p. 381*



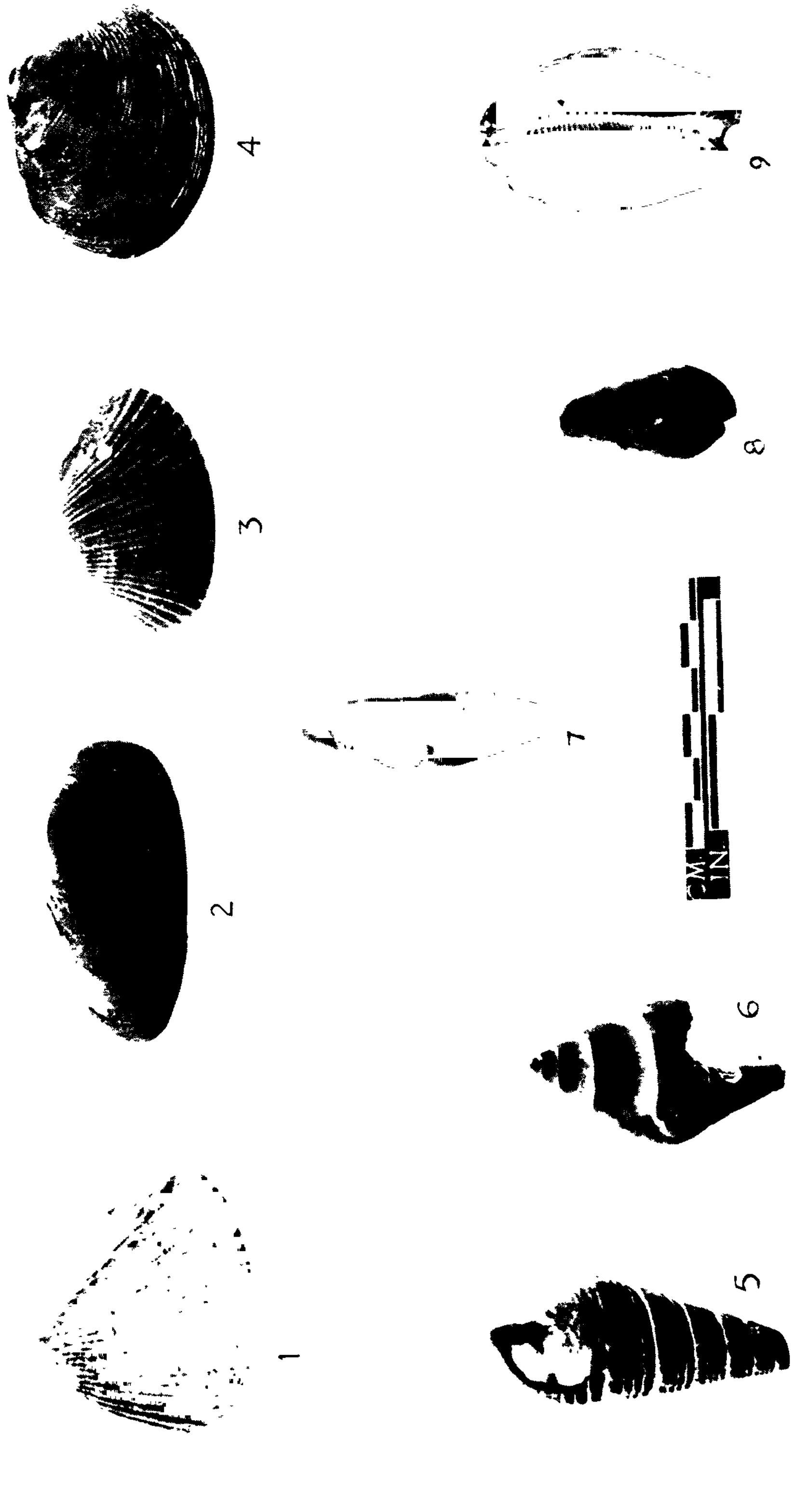
Pl. CII. Animal remains. *See p. 381*



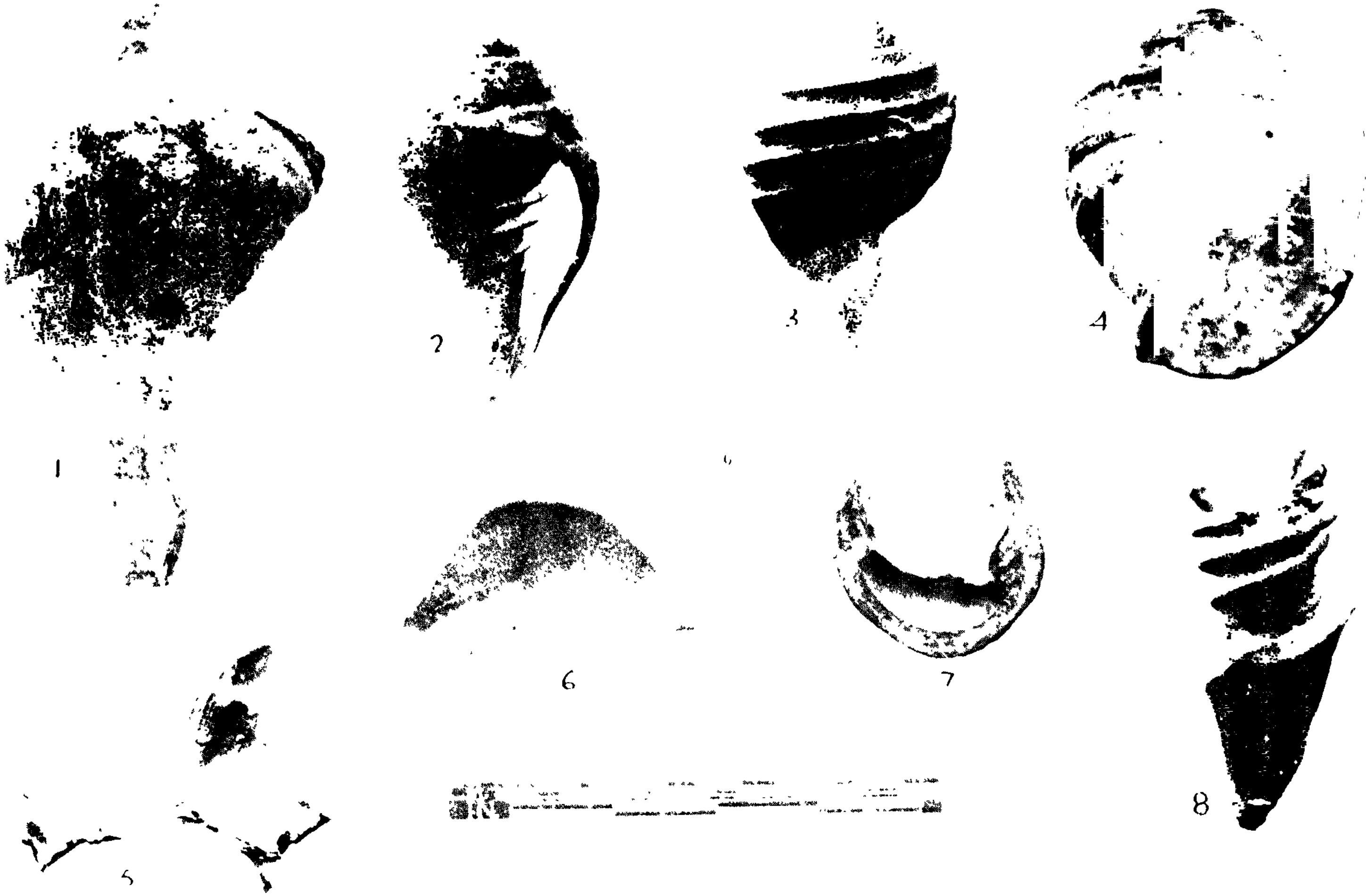
Pl. CIII. Animal remains. *See p. 381*



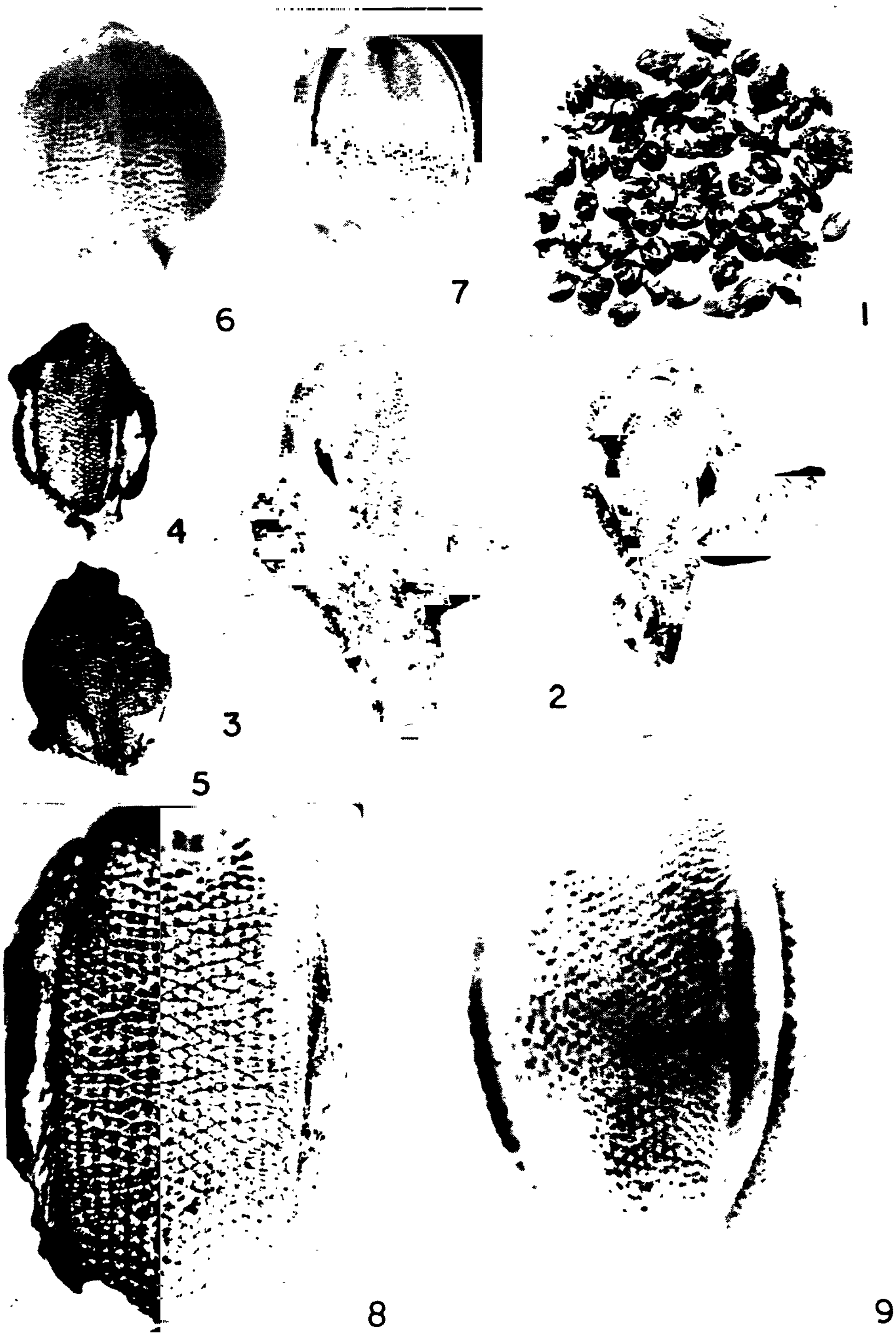
Pl. CIV. Animal remains. *See p. 381*



Pl. CV. Shell remains. *See pp. 385-388*



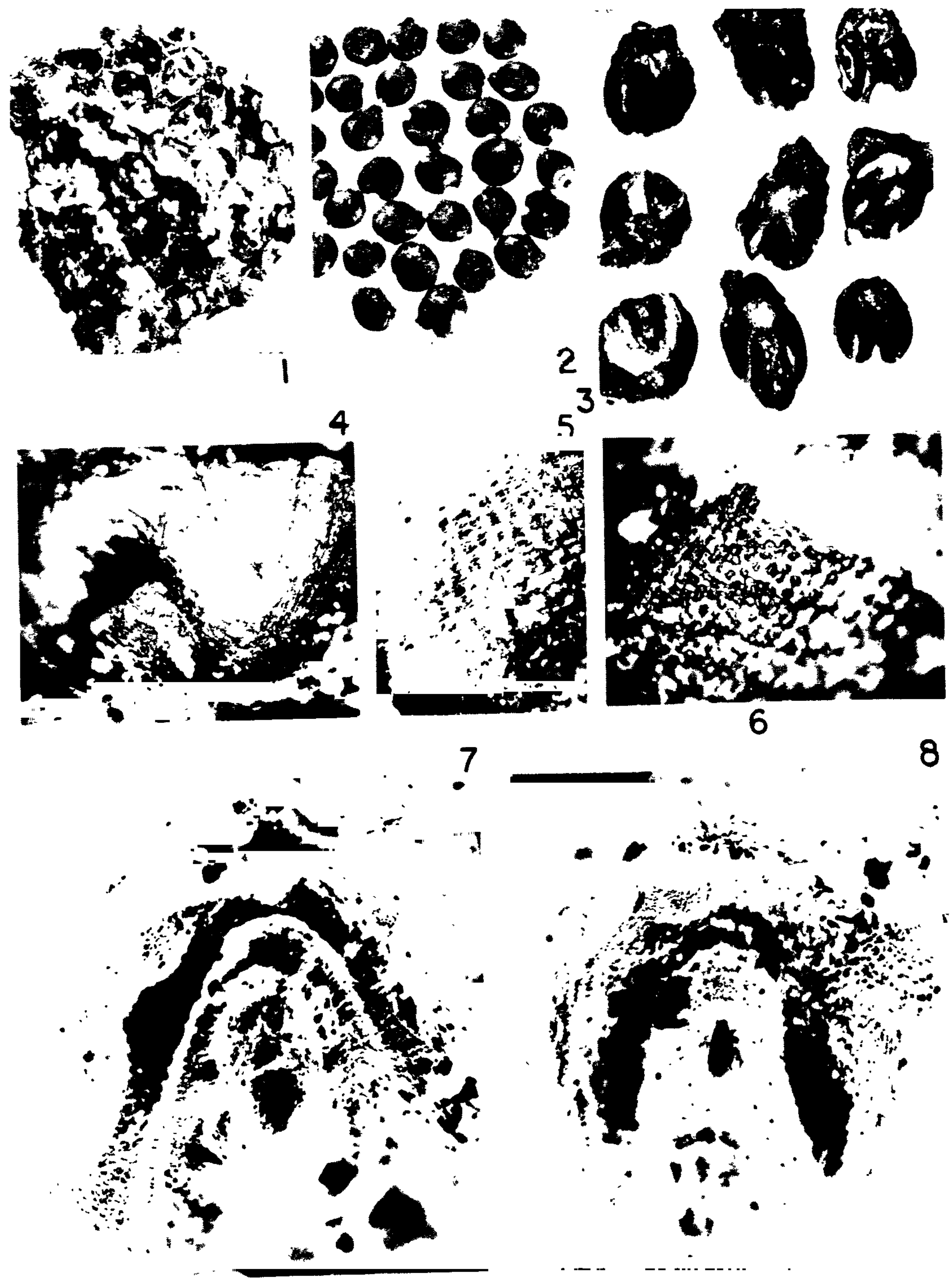
Pl. CVI. Shell remains. *See pp. 385-386*



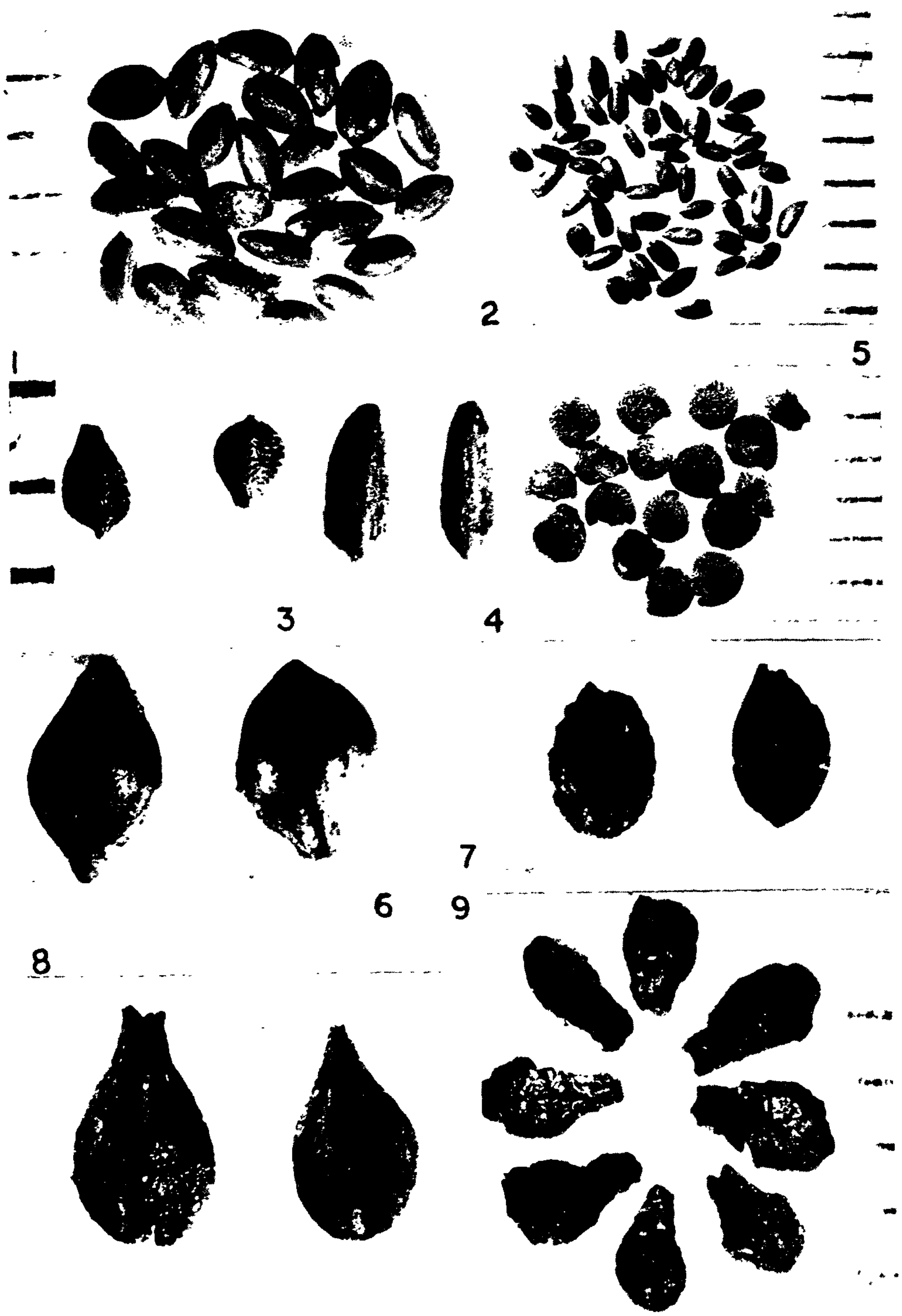
Pl. CVII. Plant remains. *See p. 389*



Pl. CVIII. Plant remains. *See p. 389*



Pl. CIX. Plant remains. *See p.* 389



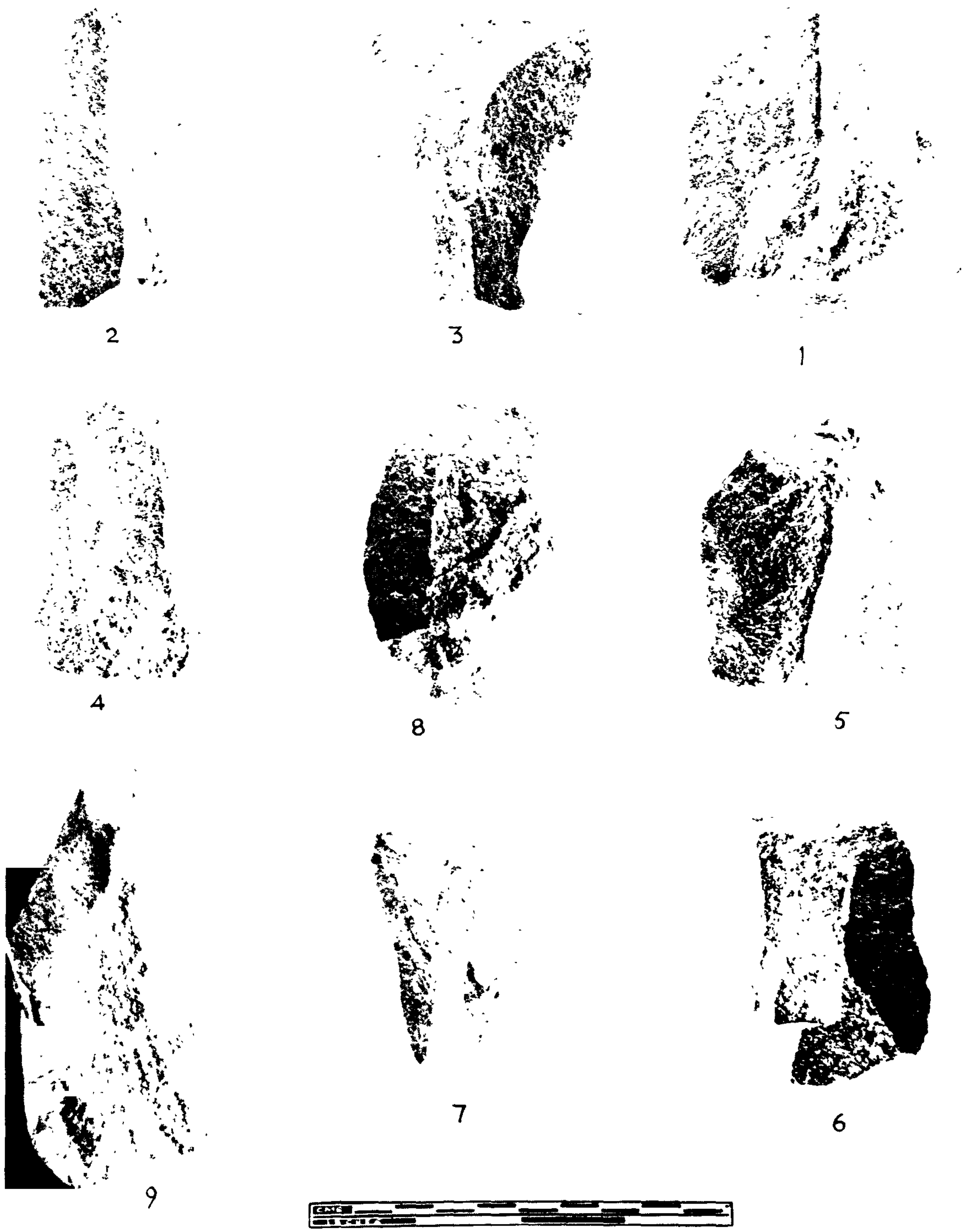
Pl. CX. Plant remains. *See pp. 390-391*



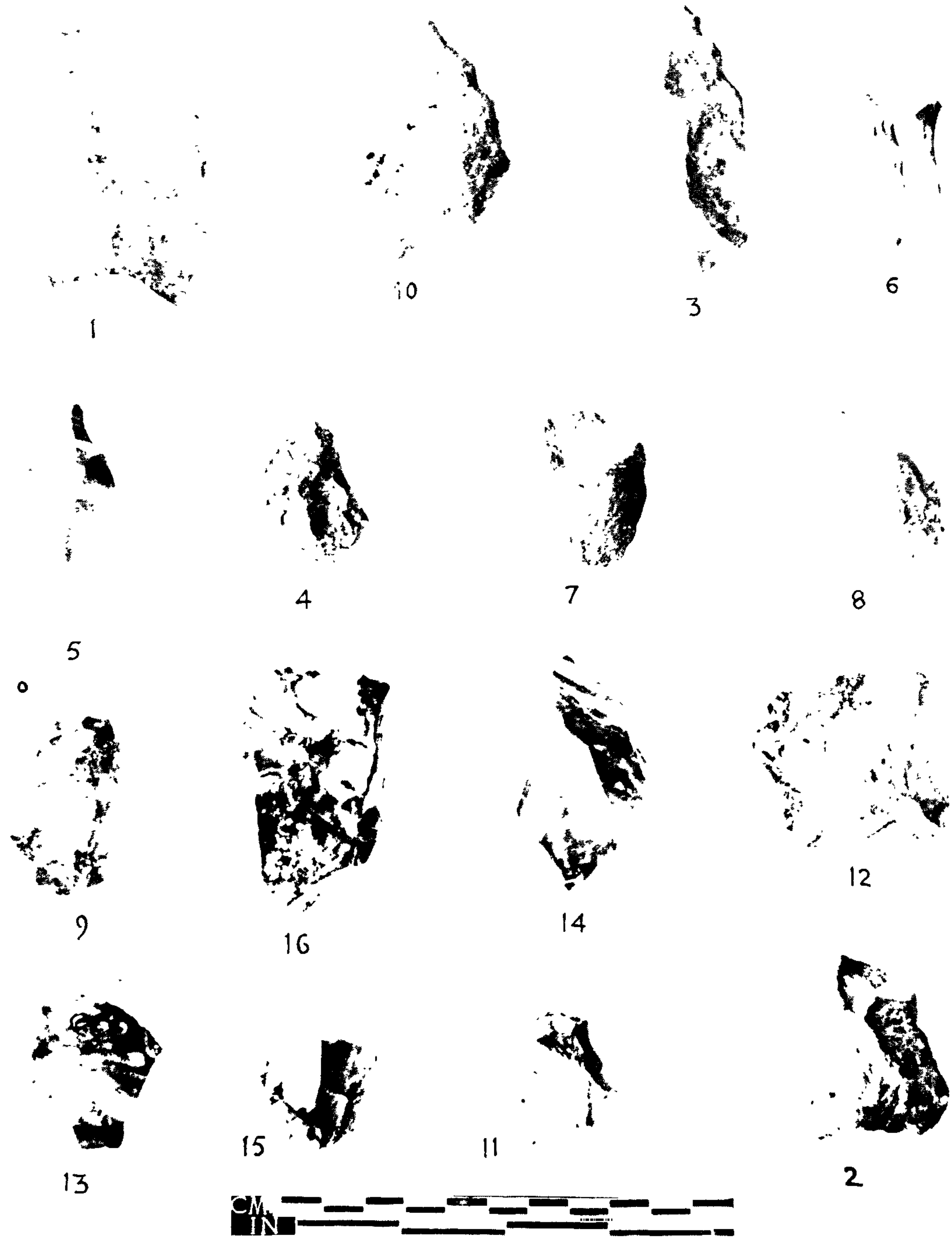
Pl. CXI. Plant remains. *See pp. 390-391*



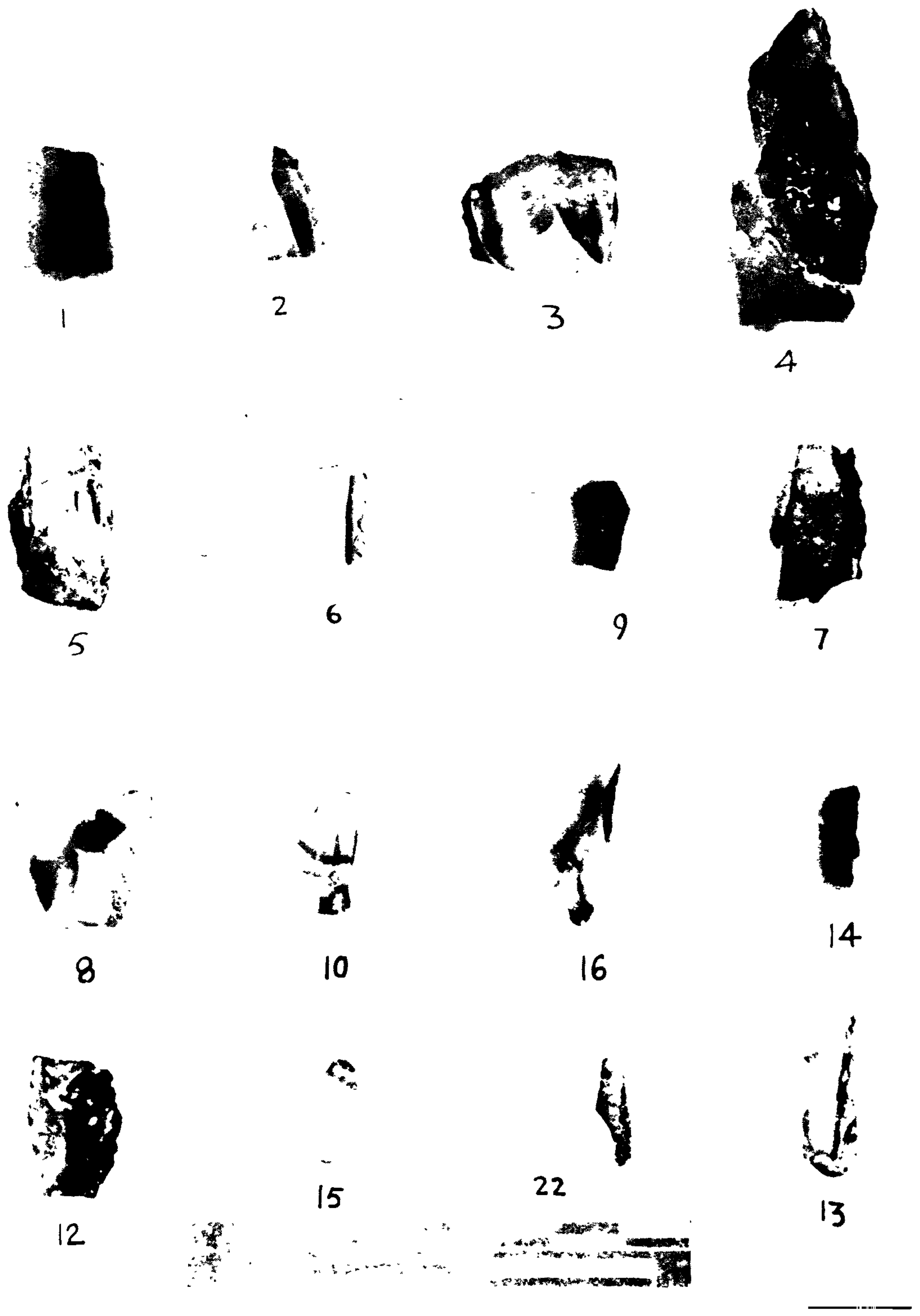
Pl. CXII. Early Stone Age tools. *See p. 397*



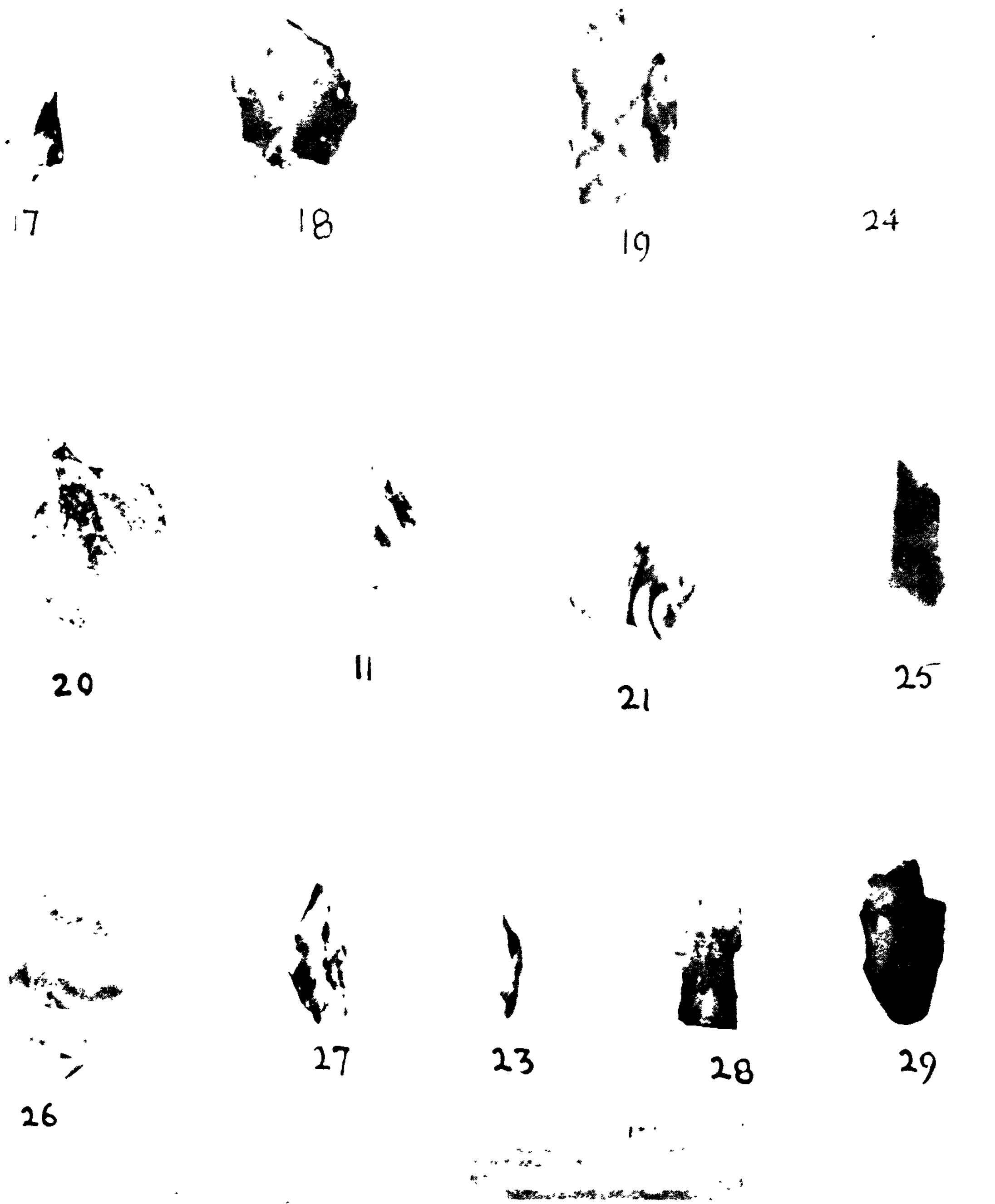
Pl. CXIII. Middle Stone Age tools. *See p. 401*



Pl. CXIV. Middle Stone Age tools. *See p. 401*



Pl. CXV . Late Stone Age tools. *See p. 405*



Pl. CXVI. Late Stone Age tools. *See p. 406*



Pl. CXVII. Kotadi : General view of the mound. *See p. 412*



Pl. CXVIII. Kotadi : Exposed section of the mound. *See p. 412*



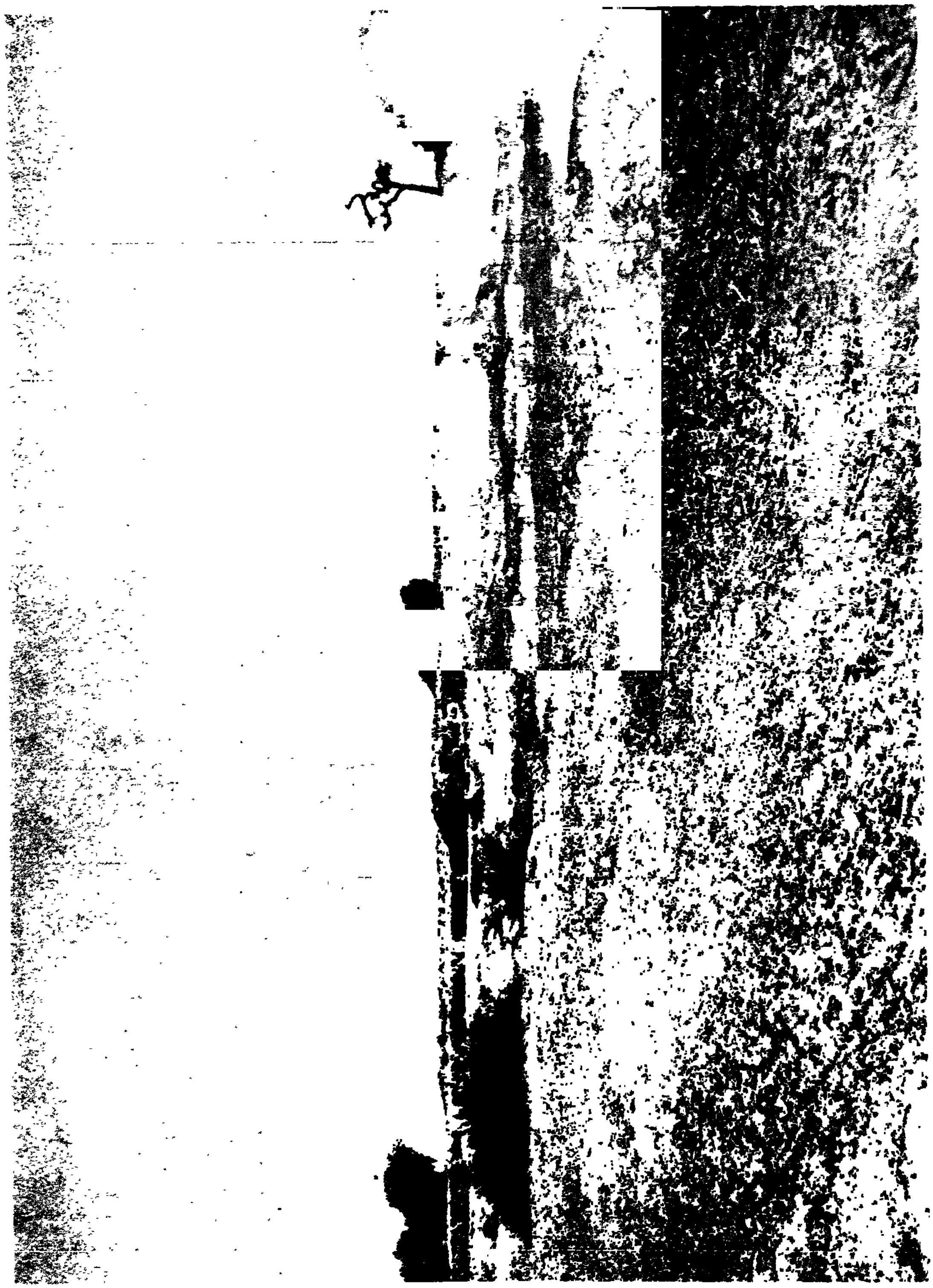
Pl. CXIX. Kotara : General view of the mound. *See p. 415*



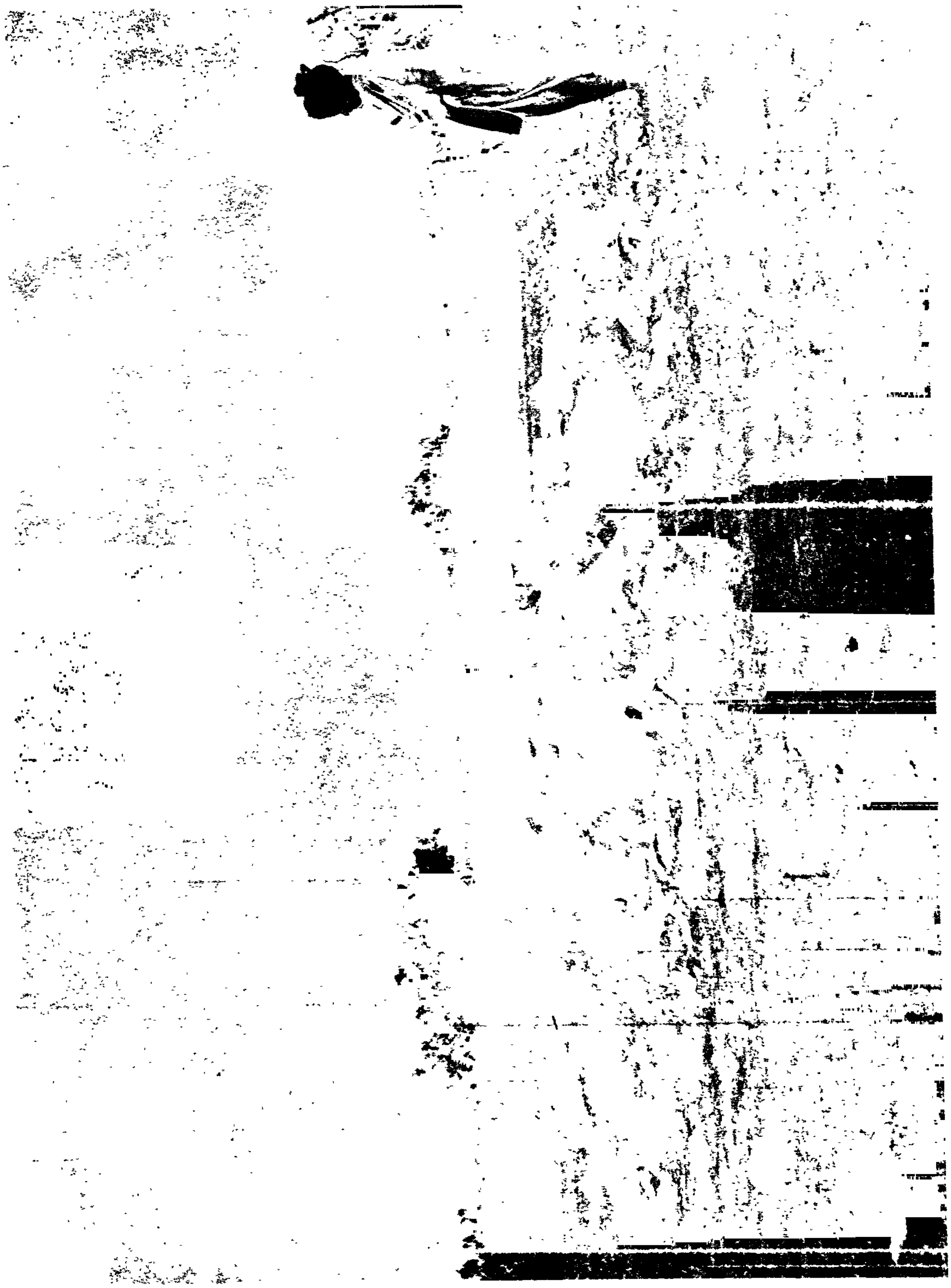
Pl. CXX. Kotara : General view of the mound. *See p. 415*



Pl. CXXI. Pabumath : General view of the mound. See p. 415



Pl. CXXII. Kotada : General view of the mound. *See p. 419*



Pl. CXXIII. Cairns : Saya Khan-ni-Wandh Cairns. *See p. 429*



Pl. CXXIV. Saya Khan-ni-Wandh : Cairns. *See p. 429*